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ABSTRACT

In this book a collection of articles report the results of several projects designed to adapt research findings into classroom practice through inservice education. In the first of four sections an introductory article discusses the concept of research adaptation as a tool for staff improvement. The second section is devoted to articles on using inservice education to promote the utilization of research in the schools. Section three contains examples of the use of innovations in the elementary classroom. An article on delivery systems in staff development programs comprises the fourth section. A final coda presents a summary of the topic and conclusions. (JD)

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Adapting Educational Research:
Staff Development Approaches

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1979 Teacher Corps Research Adaptation Cluster

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Preface

The ideas discussed in this manuscript are grounded in an orientation of collaborative research involving educational practitioners, teacher educators and researchers. As such, it is part of a programmatic attempt by Teacher Corps to employ concepts and methods from both the theoretical and practical realms and to bridge the gap between these two educational domains. A basic premise of the manuscript is that in a world of rapid change, public school and university personnel alike must be actively engaged in staff development through the application of research findings. No longer can we be satisfied with what worked a decade ago. We must draw from available alternatives as to what appears most appropriate for dealing with issues such as diagnostic/prescriptive teaching, education that is multicultural, disruptive youth, teaching basic skills as well as community involvement.

Teacher Corps began under the authorization of Title V of the Higher Education Act of 1965, as amended in 1976 (PL 94-482). From its inception until 1975, the program was primarily concerned with preservice education. However, Teacher Corps underwent a transition beginning with Cycle 10 (1975) to the extent that both inservice education and demonstration became major components of the program. This phase extended from 1975-1979, during which time all projects were organized around 1 of 5 themes: (1) training complex, (2) competency-based teacher education, (3) alternative school designs, (4) interdisciplinary training, and (5) adaptation of research findings.

In order to test the validity of a programmatic network, William Smith, Director, and James Steffensen, Associate Director, clustered research adaptation projects into a network which was managed by an *executive secretary*. Except for the research adaptation focus, these projects had the same purpose and composition as projects funded under the other programmatic themes, i.e., "...to strengthen the educational opportunities available to children in schools having concentrations of low-income families and to encourage colleges and universities to broaden their programs of teacher preparation and to encourage institutions of higher education and local education agencies to improve programs of training and retraining of educational personnel...." (Title V, Part A).

Over the past four years, 21 projects were clustered while adapting validated research: Cycle 10, eight projects; Cycle 11, seven projects; and Cycle 12, eleven projects. Five of eleven Cycle 12 projects were also Cycle 10 projects. Each cycle was two years in duration.

Projects organized around the adaptation of research theme were viewed as a "testing lab" for validating claims made for new educational products and procedures. The general mission of the projects may be summarized as:

1. Adaptation and demonstration of validated products and practices relative to needs of the project's environment;
2. Application of formative and summative measures (of effectiveness) of chosen research findings on target populations;
3. Systematic documentation of implementation procedures and educational effectiveness; and
4. Acceleration of the influence of theory and research in the design of teacher training.

As a cluster of projects with common interests (adapting research findings), the network/linking concept facilitated the sharing of ideas, dissemination of information, and utilization of members as technical assistants. The non-hierarchical structure of the network was such that the most appropriate persons assumed leading roles in those areas where they had the greatest competence and interest. In other words, the cluster of projects was characterized by collaborative decision-making based on the issues and expertise of members within the group. The interaction of this group can be accurately described as open, honest, and constructive.

For this we acknowledge and thank William Smith for encouraging open discussions addressing both the journal of "negative" and "positive" findings; James Steffensen for his support and ideas; and Haroldie Spriggs and Susan Melnick for their encouragement and active involvement in many activities. A special thanks is extended to the Board of Directors: Keith Acheson, Dick Arends, William Cole, John Hansen, Jack Kean, Betty Myers, Karen Nicholson, Patricia O'Reilly, Gerald Pine, Bill Quirk, Rita Richey, Robert Spaulding, John Walthew, and Ann Wheeler. A significant strength of this group has been the critical and professional level of discourse and collaboration.

The monograph would not have been possible without the stimulating ideas that emerged from papers delivered at the Chicago and San Francisco conferences. While all papers are not included, we are

grateful to the presenters for sharing their ideas and reacting to those of others. Our warm thanks go to Cass Bittle, Kathleen Johnston, and Karen Russell for their accurate typing of the manuscript. We are deeply indebted to them.

Lee Morris

SECTION I

INTRODUCTION

1 Research Adaptation and Staff Development

Lee Morris
Gregory A. Sather
Gerald J. Pine

What is research adaptation? What insights can be gained about the process of using research-generated knowledge within the practical, everyday world of the local school? What is the place of research adaptation in staff development? These questions were considered important enough that Teacher Corps initiated projects for the deliberate application of research findings. Specifically, Teacher Corps observed:

> *Training based on organizing the results of educational research grows out of two concerns. First is the need to encourage practitioners to organize and implement research ideas, findings, and products so as to deal more effectively with everyday education problems and their solutions in regular educational environments. Second is the need to accelerate the influence of theory and research in the design of teacher training programs (Teacher Corps, 1975).*

As will be seen from the case studies presented in this monograph, research adaptation projects responded to the initiative with a variety of approaches.

Research adaptation can be conceptualized as a staff development process in itself or as part of a staff development process. Most simply research adaptation is participatory research involving teachers, teacher educators, and researchers from the needs assessment stage to evaluation

and dissemination of findings. The concept draws from change literature concerning knowledge utilization and diffusion (KU&D); research development and diffusion (RD&D); and linking concepts (i.e., bringing developers and users together). Much emphasis is also placed on evaluating the relative impact of the research findings on target populations.

On one hand, adaptation of research findings is a departure from traditional research activities directed only by university researchers. A weakness of traditional research is that researchers typically keep the locus of decisions outside the school and away from teachers. This unfortunate state of affairs is either actively perpetuated or passively accepted by many universities, reinforcing an "ivory tower" mind set.

On the other hand, research adaptation differs from the view that staff development should be the sole function of practitioners. The thesis of the monograph and the case studies is that staff development is a collaborative process that takes advantage of the diverse backgrounds, interests and expertise of practitioners, teacher educators and researchers.

The objectives of this chapter are to discuss the relationship between adapting research findings and other change strategies; to highlight the salient theoretical and practical components of the process; to discuss the relationship of research adaptation and staff development; and to construct a framework for discussing the case studies.

Process of Research Adaptation

Relationship with Other Change Efforts

In the process of linking theory and practice or the application of research to practical situations, Teacher Corps assumed several things (Teacher Corps, 1975). An overarching assumption was that a substantial body of research results was available in immediately usable form concerning learning and educational processes. The formation of research adaptation projects represented a deliberate effort to demonstrate the use of data based solutions for the improvement of educational personnel.

It was reasoned that through the research adaptation strategy educational practitioners would be trained in generating and testing hypotheses. Further, practitioners would be able to organize and implement research ideas, findings and products in order to deal more effectively with daily educational problems and their solutions in regular educational environments. By extending the use of research attitudes and knowledge to

participating educational personnel, there would be an accelerating influence of theory and research in the design of staff development programs.

Many models constructed from change theories suggest definitive methodologies for affecting change. They take the position that change is no longer a matter of random evolution but a deliberate effort of social engineering (or educational intervention). From a synthesis of change literature, Havelock (1971) extracted three models having implications for adapting research findings: the research, development and diffusion model (RD&D); the social intervention model; and the problem solving model.

The RD&D model is the oldest and assumes that planned change starts with research and/or analysis of research. This leads to the development of appropriate solutions and the testing and packaging of these solutions for dissemination. An implicit assumption in this model is that clients struggling with a problem will gratefully accept the solution once they are aware of it.

The social interaction model starts with people who are to be influenced by the change and studies the network of social relationships of these individuals. This model focuses on the identification of a leader near the center of the network who can spread the innovation through the social network. Central to the model is identifying and strengthening communication networks and promoting exchange of ideas.

The problem-solving model starts with practical problems which face individuals or institutions when a sense of need is felt by the client. The need is translated into specific problems. The problem is diagnosed and data collected. Resource consultants are used to work in a supportive, yet nondirective relationship with the client. When a potential solution has been identified, the users adapt it to their particular circumstances, try the adaptation and modify it as appropriate. This model appears less paternalistic than the others but it places heavier demands on clients through their active involvement in the process.

Research adaptation is eclectic drawing from all three models. It consists of: (1) needs identification; (2) establishment of measurable objectives or criteria; (3) consideration of restraints and alternative solutions; (4) selection from among the alternatives; (5) implementation of chosen solutions; (6) evaluation of results against the stated objectives; and (7) continued modification of the research to correct deficiencies.

Theoretical and Practical Components

A research adaptation outcome is a product of two generalized processes. The research finding is modified to fit the needs and circumstances of the project and the project's environment is modified to provide a niche for the implementation of the research finding. The modifications can range from a strict, carefully controlled replication, to a "simple" adoption, or to general modifications of both the research outcome and the projects' environment, i.e., adaptation. This represents a model that classifies research adaptation according to the extent of modifications needed to operationalize and implement the research finding in a project's staff development efforts. See Figure 1.

Figure 1
Model of Research Adaptation

	Adaptation	Adoption	Replication
Research finding modifications	Variety	Few	None
Environmental modifications	Variety	Variety	None (tightly controlled conditions)

Replication requires no modifications to the research findings and the primary purpose is to test the efficacy of the research finding under a new set of controlled conditions. Adoption is more amorphous than replication because though there are few modifications to the research finding there may be a variety of modifications to the environment. Also, less attention, if any, is given to the control of conditions under which the research finding is implemented in the staff development program. Adoption includes efforts that range from being very close to replication to those that are more similar to adaptation. Adaptation is an effort where modifications are made in both the research finding and the environment.

Staff development with a research adaptation focus can be implemented with a sundry of modifications to meet the local needs and objectives of the project. A multiplicity of research adaptation processes is evident in the case studies. However, several steps are common to these research adaptation processes (Table 1). As these steps are undertaken attention must be given to continuously documenting activities and

establishing and maintaining collaborative or collegial relationships. Some of the steps, as diagrammed in Figure 2, are performed simultaneously.

The case studies demonstrate collaborative relationships are essential to mutual adaptation of research findings and, indeed, to the total process. The idea is to remove negative stereotypes held by both teachers and teacher educators, i.e., the "ivory tower" professor and the "mindless" teacher. This attitude is counterproductive to staff development because neither group is seen as credible in the eyes of the other. The primary goal of adapting research findings to practical situations is as much the engagement of teachers, teacher educators, and researchers in the process of mutual professional development as it is the implementation of products and materials.

Research Adaptation and Staff Development

There are many different ways that teachers grow. One powerful way is through the process of research adaptation which is characterized by several essential elements:

1. Research problems are defined by practitioners.
2. University faculty and classroom teacher collaborate in seeking solutions to the practitioner's problems.
3. Research findings are used and modified in solving problems.
4. Practitioners develop research competencies, skills, and knowledge.
5. Practitioners as a result of participating in the adaptation process are more able to solve their own problems and renew themselves professionally.

Research adaptation is action oriented in that it seeks to liberate teachers' creative potential, stimulate their abilities to investigate their situations, and mobilize human resources to solve educational problems. As a collaborative process research adaptation begins when researchers and university faculty assist teachers in developing the skills to identify and conceptualize their problems. The adaptation process involves several steps as outlined earlier in Figure 2.

Teachers participating in this kind of research adaptation become agents of their own change. Without formal courses, workshops, or the traditional teaching/learning situations which ordinarily characterize staff development, teachers through the adaptation problem solving approach

Figure 2
Adaptation of Research Findings

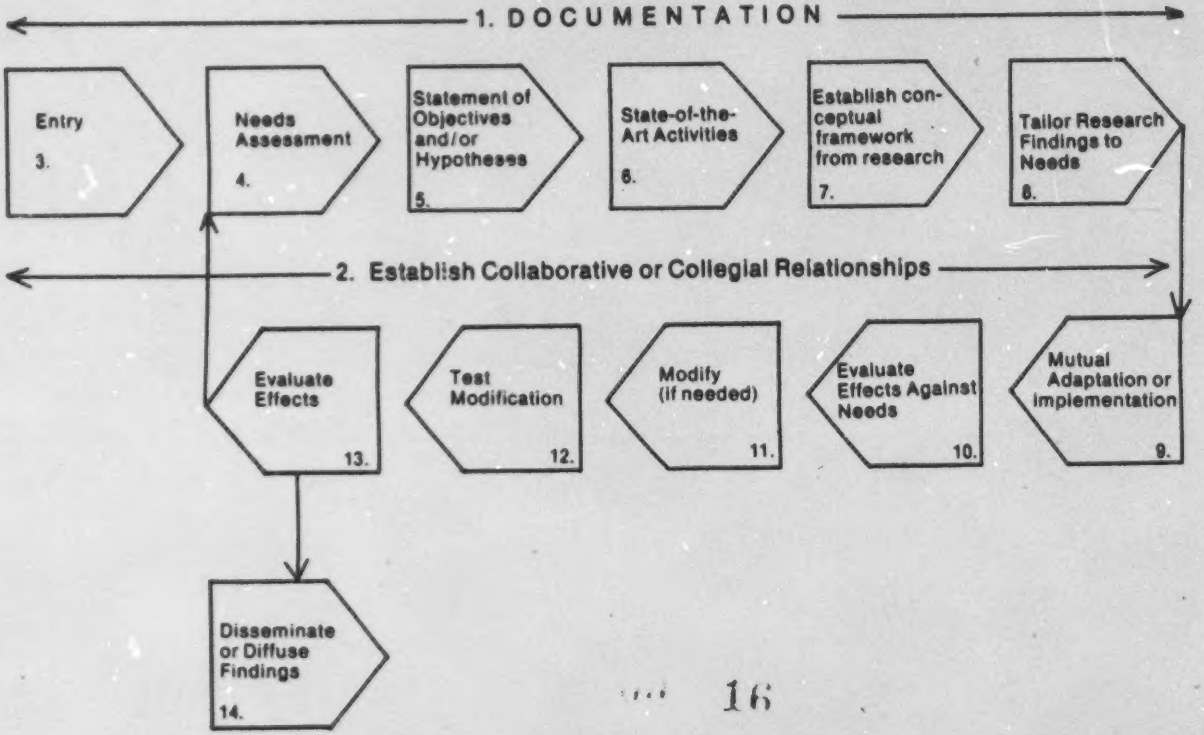

Table 1
Explanations of Components in Figure 1 "Adaptation of Research Findings"

1. *Documentation* begins at the point of entry and extends throughout the research adaptation process. The purpose is to systematically collect evidence to authenticate facts, to verify claims and opinions, and to support inferences drawn from evidence.

2. *Establishing Collaborative or Collegial Relationships* also begins at the point of entry and continues throughout the research adaptation process. It involves building and maintaining trust, credibility and reciprocity in relationships between teachers and teacher educators in ways that skills and interests are maximized.

3. *Entry* is the phase where collegial relationships are established and negative stereotypes removed. Objectives and expectations of teachers and teacher educators are expressed. Objectives of the permanent and temporary systems are communicated to all participants as well as the expected outcome of the research adaptation process.

4. *Needs Assessment* includes identification and comparison of goals and present conditions which determines direction for subsequent components of the research adaptation process. Needs are defined as the difference between what is and what should be as perceived by teachers, teacher educators, administrators, parents and students.

5. *Statement of Objectives and/or Hypotheses* involves clear statements of objectives or hypotheses in terms that can be measured or tested.

6. *State-of-the-Art Activities* is a process of reviewing relevant literature, analyzing, synthesizing, and interpreting the research findings for practical application.

7. *Establishing Conceptual Framework from Research* involves reality-based dialogues resulting from examination of relevant literature concerning implications for teaching and learning.

8. *Tailor Research Findings to Needs* involves modifying or adapting research findings to the peculiar circumstances of the user.

9. *Mutual Adaptation or Implementation* is the participation of teachers and teacher educators in decisions to adapt research findings to the reality of their teaching - learning environments.

10. *Evaluate Effect Against Needs* is an effort to determine the discrepancy between needs as stated in objectives and actual outcomes.

11. *Modify* involves "bridging the gap" between the intended and actual outcomes if discrepancies exist.

12. *Test Modification* involves implementation of the modified research findings and/or adaptive process.

13. *Evaluate Effects* is an evaluation of the modified phase to determine if needs or objectives were achieved.

14. *Disseminate or Diffuse Findings* is an attempt to inform and influence persons having similar needs.

grow personally and professionally and develop skills and competencies which empower them to solve their own problems. Moreover, they not only are able to identify practical theories that apply to their own idiosyncratic settings but they are also able to formulate these practical theories as general hypotheses which have the potential for universal applicability.

Research adaptation yields its own findings regarding the effectiveness of different research based strategies in different situations with different pools of available resources, and for different kinds of content. As Massanari (1978) suggests, "such findings should be collected, synthesized, and disseminated to the education community. They would be valuable and needed contributions to the knowledge base that supports education personnel development. Publications such as 'What's Working Where' and 'What Didn't Work Here' would be welcomed by the education profession."

Another way of looking at research adaptation is to view it as a process embedded in a staff development program. From this perspective research adaptation is but one event among several planning and decision making steps in a staff development program. Implementation of a staff development program which includes research adaptation would involve the following interrelated steps:

1. Determine how to identify staff development needs and what they are.
2. Determine what instruction, courses, seminars, workshops, independent study, practicum experiences, and training materials will likely be required to meet the needs.
3. Analyze the contextual conditions to determine what restraints they impose and what potential they have for contributing to effective staff development programs; consider how the conditions might be changed to make them less restrictive.
4. Analyze the available resources to determine their potential as well as their restraints and to consider how the available pool of resources might be expanded as necessary.
5. Examine relevant research to ascertain which findings might contribute to meeting staff development needs effectively.
6. Interrelating the outcomes of the previous steps, determine what kinds of content (as defined earlier) are needed and the strategies for providing them.

7. Establish and implement quality-control mechanisms (documentation, evaluation procedures, research designs) to demonstrate the effectiveness of the strategies being used.
8. Modify the strategies in accordance with feedback from experience (Massanari, 1978).

In staff development and research adaptation innovations are almost never adopted as a whole. Instead, they undergo transformation in an attempt to fit them into the established social and political structure of the user's environment. What is typically found is the tendency to emphasize those elements that are most compatible with the established system and to deemphasize the elements that challenge the existing order. While tailoring research findings to local needs increases their chances for utility, it should not be interpreted as helping personnel of local institutions do more of what they are already doing or reinforcing existing behavior. Research adaptation is a process of partisan mutual adaptation (Mann, 1976) in which innovations, schools and personnel are transformed through challenging and ongoing dialectical staff development.

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SECTION II

RESEARCH ADAPTATION

Easley Broudy (1973) notes a strong tendency on the part of educators to confuse and confound an experimental approach, such as the pure scientific methodology, and experimental design, the general sense of model and statistical design. He continues to describe in a general way what he calls a concept of "exploratory method." Easley's exploratory research raises a number of practical questions which are addressed by Pine and Barnes, Putnam, and Wanous in the following two papers.

The ordinary classroom in which education occurs is a complex environment. Rather than viewing this environment as "messy" researchers have conceptualized it as a rich storehouse of opportunity for interactive research by both teachers and teacher educators. The vivid descriptions of the collaborative process which is seen by the authors as essential to success is one of the recurring themes throughout the papers. The issues of decision making, accuracy of perspective, and responsibility are systematically addressed with an amazing congruence by the authors.

Pine's paper leads the reader into an interesting analysis of the continuum of research from a basic research mode to an action research mode. The criteria established provide some guidance for analysis of the exemplars presented later in this work. His examples which accompany each category provide further clarification of the criteria or categorization.

Barnes, Putnam, and Wanous address the issues of when does a teacher becomes a teacher educator and its converse, and the unique dissemination and interaction possibilities this dichotomy produces. This process model, while differing little conceptually from that of Pine, provides a more extensive description of the collaborative process.

Perhaps most importantly both papers provide a frame of reference which differs from the traditional experimental design—a frame of reference in which action research through research adaptation may lead to improved learning for children.

2 Teacher Adaptation of Research Findings Through Inservice Education

Gerald J. Pine

Universities, Teacher Corps, NIE, regional research centers, and local education agencies have generated research findings which have direct implications for practice in terms of the development of classroom materials, complete instructional systems, strategies for teacher and administrator training, implementation processes, and procedures for evaluation. The demonstrated adaptation of these findings can address significant educational problems. But research findings which sit unused on shelves are a far cry from improved educational practice. Unless local school systems see R & D innovations as responsive to some need and support them accordingly, then research validated models and processes will have little chance of survival and less chance of impact.

Rapid social change with concurrent changes in demands on teachers, wide variations within instructional settings, and a growing awareness that to improve teachers' impact on pupil learning there must be changes in teacher performance, all of these elements accentuate the importance of implementing an on-going, individualized approach to teacher education. Both preservice and inservice teachers need a continuing means of acquiring the skills that they individually need to fulfill their instructional roles. Research validated models, processes, and protocol materials offer a high potential approach to vitalizing preservice and inservice teacher education. They provide creative means for melding theory and practice into effective learning-means which reflect conceptual underpinning and technical know-how. Field-based experimentation is needed to determine the unique place

of research findings in teacher education and to assess the effectiveness of using such data in facilitating organizational, curriculum, and behavioral change.

The Research Adaptation Cluster is a Teacher Corps subsystem consisting of projects whose primary mission is to adapt validated research findings as a demonstration strategy for training and retraining teachers. The University of New Hampshire-Portsmouth Teacher Corps project was one of the Cycle 12 participating projects in the Research Cluster. The project was designed to test the hypothesis that educational change can be accomplished through the demonstrated application of research validated models and practices. Research findings for adaptation at Portsmouth Junior High School, Portsmouth, New Hampshire, were identified through an extensive and comprehensive needs assessment process. Research adaptation in isolation is doomed to failure, and the identification of specific research findings for adaptation requires consideration of the environmental contexts within which adaptation is to take place. Research adaptation planned with a working knowledge of institutional organization, school climate, teacher needs, teaching styles, student characteristics, and community expectations has an optimal chance to succeed and to have success measurable in terms of student achievement.

The UNH-Portsmouth Teacher Corps project offered integrated preservice and inservice education within a research based framework for the junior high school teaching staff, Teacher Corps interns, parents, community volunteers, and classroom aides. A variety of field-based training options was offered to these project constituencies. While many training options were available, training focused upon four major thrusts organized into program components which responded to concerns identified through the project's needs assessment.

A basic operating principle of the project is that potential users and adapters of research will use research more readily when they participate in deciding what research findings and strategies will be used and how they will be used. The successful adaptation of research findings hinges on this fundamental principle that those people to be most affected by planned change and innovation must participate in all the decisions which will affect them.

Introducing Adaptation

To translate this principle into action, to maximize individual staff development, and to facilitate the systematic adaptation of research fin-

dings by teachers, the project implemented a modification of the Concerns Based Adoption Model (CBAM) developed at the Research and Development Center for Teacher Education at the University of Texas. The CBAM model has two key dimensions. The first of these dimensions is the Stages of Concern About the Innovative Strategies. It is hypothesized that as teachers consider the use of innovative strategies they will have more self-concerns, concerns about how the use of the innovative strategies will affect their status, time, and job performance. As use of the strategies begins, teachers have more task concerns, concerns about how to manage and use the strategies. Once many of these task oriented concerns are resolved, teachers have more impact concerns, concerns which focus on improving the use of the strategies to increase their impact on students.

The second and equally important dimension of the Concerns Based Adoption Model is the actual behavior of teachers as they adopt innovative strategies. This dimension, the Level of Use of the Innovative Strategies, also is a developmental sequence which begins as teachers prepare for and begin use of the strategies and ends when teachers have developed the skills needed for effective use of the strategies may begin to seek alternatives. The steps in this sequence are Orientation and Preparation for Use, Initial (Mechanical) Use, Routine Use, Refinement of Use, Integration of Use, and Renewal (Seeking Alternatives).

The CBAM model concentrates on individual teacher concerns as a first step in the change process and offers a valuable framework for facilitating teacher adaptation of research findings. Within the sixth month planning period required of all 12th Cycle Teacher Corps projects, the first steps of the CBAM model were implemented through two on-site planning courses. One course entitled "Introduction to A Teacher Corps Model: Systematic Adaptation of Research Findings" carried four graduate credits and was designed to introduce teachers to the major concepts and strategies of Teacher Corps, provide mini-learning experiences and dialogue in the areas of critical concern to Teacher Corps (exceptional child, multicultural concerns, individualization, community involvement, etc.). Besides acting as a formal and regular forum for collaborative planning, the course also provided teachers with learning experiences in methods of classroom adaptation of research findings and the opportunity for teachers to discuss their personal and group concerns about innovation.

The companion on-site planning course, "Needs Assessment Design" which also carried four graduate credits, was a practicum which combined general theoretical inquiry into assessment; skill development in instrument building, decision making, administration, and data analysis with ac-

tual implementation in the junior high school. The teachers, while carrying out the needs assessment, learned concepts and practiced skills which would enable them to continue and renew the needs assessment process after the project terminated. In the final stages of these two courses the teaching staff, in collaboration with project personnel, identified four major thrusts for inservice work and research adaptation: Mainstreaming and the Exceptional Child, Reading and Writing, Individualization, and Psychological Education. The teachers' identification of these four broad areas for research adaptation naturally led to questions about the process of research adaptation. How were research findings in these major areas to be adapted? What models of research adaptation should be used?

Models for Adapting Research Findings

In her review of Research Cluster Teacher Corps projects in the United States, Greta Morine-Dershimer (1978) identified three basic orientations to research adaptation: the research orientation, the adaptive orientation and the school problem orientation.

Projects that typified the research orientation tended to identify sound research that seemed to be related to rather general or widespread school problems. The expectation was that this research would be readily adaptable to the specific school site at which the project was based. Teachers at the participating project school agreed to become involved in training based on a particular area of research but they did not have any input into the original base. Research orientation projects tended to select a single concept or a narrow base of research to be applied. They also tended to identify questions for further study that would expand the knowledge base in the area of research they had selected for application.

Projects that typified the school problem orientation began by working with teachers at a local school site to identify the specific needs and concerns at that site. A search was then made to identify research that might provide solutions responsive to those needs. These projects chose to demonstrate the process of research adaptation rather than to demonstrate the effectiveness of adapting a specific line of research. School problem orientation projects selected a wide range of research to be applied. The expectation was that a variety of problems existed and a variety of research would be required to make a real impact on these problems. School problem orientation projects identified questions for further study that stemmed directly from the concerns of teachers at the local site.

The adaptive orientation occupied a more middle ground between the research orientation and school problem orientation and stressed the importance of adaptation as the key learning experience. Project documentation and formative evaluation characterized the approach to continued research with projects developing information systems and instrumentation to assess teacher reaction to training processes and to document adaptation.

Our project exhibits a schizophrenic quality showing tendencies to display elements of all three orientations to adaptation. The history of the UNH-Portsmouth Teacher Corps project reveals that the project began and could be characterized in its first year of operation as having more of a research orientation to adaptation. However, as the project matured, a school problem orientation clearly emerged. The project moved from a linear model of straight line adaptation to a serendipitous, ad hoc, responsive model based on emerging and changing teacher needs. An analysis of the project indicates that four strategies for facilitating the adaptation of research were used: linear systematic sustained adaptation, ad hoc school problem adaptation, case study process adaptation, and information inundations.

Linear Systematic Sustained Adaptaion

The best example of the strategy of linear systematic sustained adaptation is found in the ongoing work of Professor Sharon Oja, a faculty member at the University of New Hampshire. Oja began her work with twenty-one teachers in February, 1978, when she offered a four credit graduate level course in Advanced Human Development in response to the needs assessment data which called for inservice instruction and research adaptation in Psychological Education. The course was taught on site at Portsmouth Junior High School and focused on a cognitive-developmental approach to the interaction of early adolescents and their teachers at the junior high school.

The course provided a blend of action and reflection in the following ways:

(1) The theory and research related to cognitive -developmental stage models and the Mosher-Sprinthall Deliberate Psychological Education Teaching Model as they related to junior high students and teachers was presented through readings, discussions, and lectures.
(2) Teachers participated in activities which included a potpourri of

the skills of Deliberate Psychological Education including role plays, dilemma discussions, active listening, and empathic responding.

(3) Teachers kept journals of their reactions, thoughts and feelings about course content and process; and through written dialogue with the instructor, were given supportive comments and were asked to extend further their analysis and evaluation skills.

(4) Teachers were asked to apply their learnings by trying out the newer role of teacher as a "psychological educator" in the classroom. Teachers wrote mini units aimed at their students' levels of personal/moral/ conceptual developments. Some teachers wrote units which helped them determine their students' developmental levels, while other teachers attempted to design activities which would enable their students to advance to higher, more adequate stages of development. The units were often results of teacher-voiced dissatisfactions with classroom behavior, environments, student-student and student-teacher interactions, and students' learning problems. The units were evaluated by the teachers themselves, their students, and occasionally their colleagues in a formative evaluation format so that through trials, evaluations, and reactions the units would be changed and tried again.

(5) Nineteen teachers produced video or audio tapes of one of their mini units to share with interested class members. This was an additional way for teachers to analyze and evaluate the mini units and their own skills in functioning as psychological educators in their classrooms. Sharing their products through video tape also provided teachers with opportunities to learn from the experiences of their colleagues.

(6) In a final project, teachers attempted to synthesize their experiences of the semester in either personal or professional terms; some wrote, implemented, and evaluated additional units; some wrote research papers tying developmental theory to certain classroom practices; some wrote partial autobiographies tying developmental theory to their own experiences of growth; and some teamed to deal with mutual classroom concerns from a developmental stage framework.

(7) All teachers in this course volunteered to participate in evaluation of their own levels of personal and moral development.

During the 1978 summer session, a small cadre of eight to ten teachers who had worked with Oja in the Spring began to form a research adaptation team. The members of this group were committed to ongoing adaptation and development of psychological education concepts and materials and continued collaborating with Oja through the second year of the project designing, refining, and evaluating instructional units dealing with communication skills. They are now retesting their materials and planning their work. The results of this systematic sustained effort is a 200 -page publication titled Volume I-*Deliberate Psychological Education-Initial Products*, which integrates theory, research findings, and practice. Meetings were held with the state dissemination office and a plan for disseminating the findings of the teacher research adaptation team was put into place. In addition, Oja collected pre, midpoint, and post test data to measure the personal and social growth of teachers who participated in her first course but did not choose to continue the study of psychological education vis-a-vis those teachers who comprise the research adaptation cadre. Oja hypothesized that the teachers who chose to continue a systematic sustained effort in adapting research findings would be affected by the adaptation process and would show more significant gains on measures of ego, moral, and conceptual development than those teachers who moved into other areas of inservice instruction.

While teachers involved in other aspects of the inservice program have adapted research findings in their individual classrooms, Oja and her teacher research colleagues offer a clear example of a sustained systematic research adaptation model—a continuing and cohesive strand which started with the inservice program and will continue on after the NH Portsmouth Teacher Corps project has terminated.

Ad Hoc School Problem Adaptation

As the project began to impact on the school, it changed the nature and context of the inservice program. Teachers exposed to a variety of training experiences and trying out different approaches to classroom instruction and organization began raising new questions and articulating a new set of needs for the project to respond to. In essence, teachers moved from self and task concerns to impacts concerns. Experiencing dissonance between what they were doing and what they would like to do, teachers defined practical problems and initiated their own research to solve these problems. Action research projects were started by a number of teachers who addressed specific problems generated in large part by expanded

teacher knowledge and understanding and new skills and attitudes. Their studies focused on curriculum, instructional, and learning problems. For example, a great deal of attention is being placed on competency testing throughout the country. What is competency testing? Who determines what competencies students must master? How are competencies measured? How are competencies defined? How are competency tests designed? Who designs competency tests? How are they used to help children? John Stokel and Marian Fritz, Portsmouth Junior High School mathematics teachers, are concerned about these questions and have translated their concerns into a comprehensive, ongoing research study involving the use of computers and a humanistic approach to working with students. Both of these teachers, while taking a Teacher Corps on-site graduate course in tests and measurements, decided to do something about competency testing so that each individual student would be the beneficiary of testing. Their study is generating data which will eventually help individual students in the mathematics program and improve tests so that they can be used as tools to help students rather than to label them.

Inappropriate student behavior is a concern for many classroom teachers but especially for Lorna Healey who is responsible for providing instruction for special needs students. Healey was interested in studying ways for helping students develop more positive classroom behavior. With her colleagues, she developed an approach using a combination of learning reinforcements and individualized instruction to change the disruptive behavior of one of her students. Currently, she is writing a case study which provides rich detail identifying the various factors that influence behavior and indicating how these factors can be dealt with in changing behavior. Her case study will yield useful observations for all those interested in helping special needs youngsters realize their potential.

Bob Blomquist, an eighth grade mathematics teacher, studied the question of how teaching and learning styles can be appropriately matched to improve instruction for junior high school students. Through computerized library searches and extensive reading, he conducted a comprehensive review of the literature dealing with teaching and learning styles. From this review, he hoped to generate a process which will enable teachers to analyze teaching and learning styles and to match the teaching style most appropriate for each individual student's learning style. His review of the literature already has proved to be of value and demonstrates that bringing together previous research can be very useful for the classroom teacher who wants to reach each student.

Teaching writing is a national educational concern and Sandra

Woodworth, an English teacher, has shared that concern for several years. She was interested in improving instruction in writing and studied the professional literature to determine the most valid approaches for assessing a student's writing and the most effective ways of teaching writing. She conducted a preliminary study on the perceptions students have of what constitutes good writing. Her study focused on student interests and perceptions and how these could be best assessed and used in generating solid writing skills.

Lois Cynewski was interested in an individualized and independent learning approach to home economics. She developed a large number of independent learning packages which she is using and revising in the home economics curriculum. Her study focused on what she learned in developing her unique approach and how her findings can be used by other home economics teachers who are concerned about reaching students of junior high school age so that they will master some basic life skills. She conducted a study on reading levels of home economics instructional materials, developed a collection of recipes which appeal to junior high school age students, and designed a thorough, systematic, and carefully thought out approach for promoting independent learning in home economics. Her work will be of great value to junior high home economics teachers and contains many concrete ideas which she has carefully evaluated.

How do you evaluate the teaching performance of an instructor who has implemented an individualized and open approach to education? Concerned about this question, Peter Frechette designed an evaluation system which incorporates student evaluation, self-evaluation, and supervisor evaluation of the teacher using an individualized approach to instruction. He tested this evaluation system and evaluated it collecting data from students, colleagues, and the principal. His study includes a number of instruments which can be used by other teachers who are individualizing and who wish to have their performance evaluated within the context of a philosophy of individualization. Among the instruments included in this study are Student Assessment of Instruction, Instructor Self-Evaluation, and an Observational Form for Assessing Individualized Instruction. How these instruments are used and the process of evaluation is described in Frechette's study which whould be of great interest to principals and teachers concerned about alternative approaches to teacher evaluation.

Jean Woodworth, an English teacher, during the past two years introduced a number of changes in her classroom. She studied how effective these changes were in improving the classroom learning climate and the ef-

fectiveness of instruction. She introduced a system of peer observation and feedback to improve classroom climate, small group and individualized learning approaches, the use of student journals to record personal reactions about learning and moral dilemmas to generate moral sensitivity and ideas for group discussion and student writing. Jean also redesigned her classroom to facilitate structured and non-structured approaches to teaching. Her retrospective study documents the implementation of these approaches and their impact on student learning and growth.

Jean Arsenault, a home economics teacher, tried out individualized learning capsules and is concerned about the effectiveness of these capsules in meeting the individual needs of students in the heterogeneously group home economics classes. She documented the introduction and implementation of these capsules and describes how they have been revised and their impact on student learning. Included in her research is a diagnostic tool which helps her and her students in identifying the appropriate learning capsules to be used with each student. Her study evaluates the effectiveness of this approach and will offer a quide with a number of recommendations for teachers who wish to implement a similar approach in home economics.

Peer teaching has generated a number of research findings which appear in the professional literature. Bernie Smith, a mathematics teacher, during the past two years implemented a peer tutoring program which requires identification and training of student instructors and the development of an effective management system for using student instructors. He compared the effectiveness of this approach with other approaches to teaching mathematics and collected data to determine the impact of peer tutoring, not only on learning but also on the attitude of junior high students toward themselves and their peers. He gathered these data primarily through a questionnaire format which includes objective and open-ended items for collecting data about the results of peer tutoring on the affective and cognitive aspects of learning.

An intriguing question for some teachers is how an individualized approach to instruction can be introduced into their classrooms while other more traditional approaches are maintained. Sue Parr, a social studies teacher, studied the problems and the effects of partial individualization of her social studies curriculum. For two or three days a week, she individualized her classroom, and for the other days she used more traditional group-centered approaches. She developed a number of curriculum units to facilitate partial individualization and is addressing the question of how to get students to use learning stations in the social studies curriculum.

Parr designed several learning stations which, in combination with her curriculum units, constitute the main thrust of her partial individualization program. Her research documents this approach and its effects on student learning.

Walter Barrett and Louise Novak used a multi-level individualized approach to teaching mathematics. Their approach is characterized by a great deal of flexibility which enables students to move in and out of different levels of mathematics according to their interests and abilities. They designed their pilot program to meet the needs of all junior high school students in their math classes. They collected preliminary data which indicates, from the students' point of view, that their approach is working. They collected data from 150 junior high school students to determine how students feel about multi-level individualized instruction. The results of their study should prove to be of value to junior high school mathematics teachers who are concerned about reaching all students regardless of their background and ability.

Ronald Fortier, a social studies teacher, was interested in simulation theory and how it could be translated into practical approaches to facilitate moral development. He designed several simulations which was tested out in his social studies classroom. The design of the simulations required an extensive review of the professional literature and a careful consideration of how simulation theory can be best implemented in real ways within the context of a junior high school social studies curriculum. His research reviewed the professional literature, described the design and implementation of his simulations, and evaluated the impact of the simulations on student learning.

Collectively, all these teachers are demonstrating the value of action research in addressing instructional and learning problems. The processes of adapting research and conducting school problem-centered research constitute one of the best ways to improve learning for students. The teachers at Portsmouth Junior High carrying out the studies described here give evidence of the commitment and involvement of professionals who are continually learning, innovating, and evaluating to enhance the learning of their students. Finally, they are demonstrating that action research is a powerful form of staff development.

All of the action research studies conducted by the Portsmouth teachers have the following characteristics:

(1) The research projects are teacher initiated responses to teacher identified problems and/or interests.

(2) The research projects include literature reviews which focus on research findings that have possible applications for solving the identified problems.
(3) The research projects are not locked into any one methodology and include case studies, observational studies, correlational studies, experimental designs, analytical studies, and descriptive studies.
(4) The research projects have potential for generalization of hypotheses and solutions to other teachers' classrooms in the local school site and to classrooms in other junior high schools across the country.

One of our project dissemination goals is to generate a series of publications written by classroom teachers in which they share the designs and results of their action research studies. It is imperative to encourage teachers to write articles and papers about their work. The project staff worked against an unspoken norm which says "teachers don't publish,"—a norm which emanates from a lack of emphasis on reflective teaching in our schools, a lack of time, and a low collective professional self concept which engenders an ethos of professional modesty among teachers. The act of publication is important because it says to teachers your ideas are important, your work is important, and you are important. Furthermore, writing for publication compels reflective and careful thinking about teaching and learning and helps to build within teachers an image of themselves as researchers.

Jeanne Chall (1975) observes that 50 years ago educational researchers and teachers collaborated at all levels of the research enterprise. Many of the educational researchers during the 1920s and 1930s were classroom teachers and/or school administrators. Studies in that progressive era were conducted on practical concerns of the teachers and the schools. The collaboration between researchers and practitioners went even further with joint authorship of journal articles, research monographs, and books. Furthermore, they were meant to be and were read not by researchers alone but by practicing classroom teachers. Goodlad and his associates in their book *Behind the Classroom Door* (1970) suggest that innovations in schools do not generally come about from the usual kind of dissemination of research findings but come only when teachers and administrators seek to find solutions to their own problems. They recommend that research and development should start in a school with the teachers and administrators in that school and not with the

university based educational researcher. One of the most important ideas to emerge from our project is that there is a marked need to develop a spirit of and active engagement in participatory research, an idea which will be elaborated later in this chapter.

Case Study Process Adaptation

The third strategy involved the use of case studies to document the adaptation process and to assess student growth. Measuring student learning and gains in terms of academic achievement and affective growth in relation to the goals and objectives of a specific Teacher Corps project is a paramount concern of any project but particularly a project which focuses on research adaptation. Since the ultimate objective of Teacher Corps Research Cluster projects is to introduce and demonstrate through research adaptation needed innovation and change to increase the effectiveness of education for low income, special needs, and minority group children, it is obvious that ways need to be formed to determine the degree to which this objective is achieved. What happens to student learning when research validated practices, products, and processes are systematically adapted to bring about organizational, curriculum, and behavioral change? Will students change in their perceptions of self and others? What kinds of attitudinal and behavioral changes will occur among students? What is the relationship between Teacher Corps preservice and inservice instruction for teachers and student cognitive and affective growth?

In the past the experimental method often has been used in an attempt to address these kinds of questions. But the experimental method for evaluating student growth and achievement as outcomes of a Teacher Corps project has two major problems. First, the application of the experimental design requires that experimental and control conditions be held constant throughout the length of the experiment. This means that all students and/or their teachers must receive the same amount of treatment to which they are assigned so that students receiving one type of treatment are not contaminated by the other. If data about differences between students and teachers participating in a Teacher Corps program and students and teachers not participating in the program are to be meaningful, treatments cannot be modified while the experiment is in progress. In accepting the rigorous conditions of the experimental method, one is asked to fit the program to the design rather than vice versa. The use of the experimental method would, then conflict with the fundamental principle that evaluation should lead to the continual improvement and modifica-

tion of a Teacher Corps project. Project staff cannot be expected to limit their demonstration efforts and activities to accommodate the constraints of a research design just to guarantee internally valid data. As project staff members learn about the strengths and weaknesses of their project activities, they may have to change and sometimes radically alter the project in order to meet the needs of the project's constituencies and clients.

A second major weakness of the experimental method is that it yields data about the effectiveness of a project after the fact. Therefore, while it is useful as a judgmental device, it has little value as a decision-making tool. After the fact data are not provided at appropriate times to enable the members of a project staff to determine what their project should be accomplishing or whether it should be altered in the process. Often by the time experimental data have come in, it is too late to make decisions about plans and procedures whose nature often determines the difference between the success and failure of a program to begin with.

In recent years new focus has come to the case study of students as a basis for program evaluation and as a means for investigating the variables involved in students' cognitive and affective growth. Physicians, psychologists, and anthropologists have developed procedures and models for preparing case studies that meet the needs of their professions and which can well serve the needs of the teaching profession. The history of the social sciences is filled with dramatic conceptual "breakthroughs" which have emanated from the use of case study and observational techniques. The ideas of Freud, Piaget, Maslow, Erikson, Jung, Adler, and Rogers are prime examples of profoundly influential ideas which were born and nurtured through the case study approach.

The case study approach differs from more conventional group statistical and experimental approaches in which data on a few variables are generally summarized across many or all program participants. In the case study approach, data on a large number of variables are organized and presented for only a few participants. Narratives can be prepared describing how a few students work in a program and how they interact with others and what they learned. The differences in approach can provide vastly different information to the research and evaluation audience. Two salient features of the case study are:

(1) The student as the unit of analysis. Several students are purposefully or randomly selected to be followed through the program. Information gathered about each individual and his or her activities in the program is eventually reported in a narrative

history that describes both the students and the program. These descriptions become the basis for evaluation judgments about student affective and cognitive growth in relationship to program objectives.

(2) The variety and richness of data about the individual. The great strength of the case study approach is its ability to describe in a holistic way the program "treatment" and its effects on students; it does not simply focus on narrowly defined outcome variables, but instead it includes much descriptive information. The case study synthesizes vast amounts of information about individuals and about the program and presents it in a form that can be interesting and easily understood. Information sources including background data, test scores, affective measures, self reports, peer reports, staff reports, parent observations, student products, anecdotal data, and evaluator observations are considered essential for the case study. Of special importance is the development of a chronological case history in which data are collected at different points in time. The integration and cross validation of this information adds strength to the final case study report.

In the University of New Hampshire-Portsmouth Teacher Corps project, interns using the case study approach systematically collect data and document their successes and failures in implementing skills which they have acquired through research validated activities. They test activities in their classrooms and function as action researchers who, in the real world of the classroom, explore, observe, collect, and analyze data, generate questions and refine and modify practice. One of the project's research objectives is the completion of several student case studies. Each of these case studies will constitute an historical and chronological description of the affective and cognitive development of randomly selected students from a population of special needs, low income, and minority group children along with students from middle class groups. Direct contact and extended observation of the students themselves are necessary to reach conclusions related to project variables involving the academic and affective behaviors of children. Through the case study we not only can look at pre and post test data, but also examine in detail the intervening events, forces, and activities affecting the life of each student and the project interventions and research adaptations which do or do not influence cognitive and affective changes. Studies of this kind are needed to investigate the developmental histories of different student populations targeted by Teacher Corps in

relation to a particular project's objectives. In a profession where there is a basic commitment to the teaching and understanding of the individual student, it is ironic that research devoted to the full study of single individuals is so rare. The full study of individual students enables teachers and interns to function as researchers, offers the best means for examining the wide range of contextual and project variables which impinge on student development, and provides a sound base for generating new hypotheses about student learning and growth. The case study is a powerful research methodology for validating the use of research findings and is also an emancipatory research process from which interns and teachers develop increased capacities of analysis which make new educational change actions possible. Finally, the case study allows for ongoing adaptation of research findings and indeed serves as the compass for directing the application of research findings to specific teaching and learning problems. It is in this sense that the case study approach can be regarded as another strategy for research adaptation.

Information Inundation

The UNH-Portsmouth Teacher Corps inservice program is voluntary and not mandated, and there are some teachers who chose not to participate in the program for a variety of reasons. To facilitate research adaptation and to address teacher concerns among this group of teachers as well as to assist teachers already involved in the inservice program, the project staff began to inundate teachers with research findings which are responsive to questions and concerns shared with us in the corridor, the teachers' room, the cafeteria, etc. University faculty were asked to share papers reporting research which has implications for teacher concerns, the names and addresses of individuals who can provide consultative services to teachers, and descriptions of programs and practices implemented in other schools which may be of interest to teachers. To help university faculty develop informational packets for dissemination to teachers, an ongoing informal conversational needs assessment was used to identify the areas in which research findings were needed. Materials on math anxiety, teaching styles, social studies, and science teaching methods have been disseminated, and research informational packets were prepared which speak to such topics as heterogeneous vs. homogeneous grouping, public school models of governance, military dependents and transient populations in public schools, programs to help first year teachers, peer-rejected students, child abuse, single parent homes, the effectiveness of homework

in improving and increasing student learning, and alternative models for junior high school discipline. The goals in using this approach were to " scratch and nick" the thinking of uninvolved teachers, to be responsive to all teachers, and to draw individual teachers and small groups of teachers into dialogue, reflection, questioning, and investigation of school problems so that educational change actions will result.

Research Adaptation: Synthesis

Research adaptation in the UNH-Portsmouth Teacher Corps project has not been consistent and linear for all teachers. The program is designed to accommodate different styles and different paces.

A variety of options for adapting research through inservice education were developed. They included formal university courses after school, released time programs, one to one and small group consultations, independent study, graduate research theses, visitations, professional conferences, team planning meetings, and support for teacher action research and pilot program proposals. Proposals for action research and pilot programs were supported by the project for materials, consultative services, and publication and dissemination. The project's approach to research adaptation was eclectic, allowing for different levels of teacher interest, involvement, and commitment; dialectical in that our daily actions and involvements help us in recasting our theory-in-practice mode of working; responsive to changing people and situations in the environment of the school; and challenging in that project staff actively engage in dialogue with teachers to question practice and clarify issues.

Speculations and Learnings

Reflecting on the two years of project activity, some tentative speculations or learnings about research adaptation and inservice education have emerged.

1. Action research is staff development. The processes of adapting research and conducting school problem centered research constitute effective and meaningful inservice education. Inservice education needs to be reconceptualized to recognize that in addition to credit courses, workshops, instructional modules, and professional conferences, important learning and growth occurs when teachers adapt research and carry out research to solve problems that concern them. It has been difficult to

implement research in our schools because by and large research findings have been generated by university or foundation based researchers who have no real connection with the daily life of the schools. The problem of getting teachers involved in research adaptation and generation can be addressed if the model of collaborative action research as a form of inservice education is used.

Traditional research has been a technological process responsive to the catalytic action of educational researchers who keep the locus of decisions outside the school and away from teachers. This approach prevents the school as a learning community and the teachers in the school from becoming the subject of their own transformation. Freire (1973) insists that methodological failings can always be traced to ideological errors. Behind the practice of traditional experimental research in education is an implicit ideology of paternalism, social control, and non-reciprocity between experts and "helpees." (In the traditional research study one finds "subjects" interesting language which suggests that someone must be the "ruler" or the manipulator). If one is to adopt the collaborative action research model which fosters dialogue and reciprocity, one must first be ideologically commited to equality, to the abolition of privilege, and to non-elitist forms of research leadership wherein special qualifications may be exercised but are not perpetuated.

Collaborative action research focuses on the involvement of those who are traditionally "researched" in the identification of problems, the formulation and collection of data, the interpretation of information, and the application of findings to solving problems. Collaborative action research answers the question of who has the right to create knowledge by arguing that the expected beneficiaries of research should design and carry out their own research. There are three assumptions underlying this approach: 1) parity in decision-making among researchers, trainers/developers, and practitioners; 2) respect for the unique perspective of each constituency; and 3) equal assumption of responsibility among each participant in the collaborative research and theory development process (Mergendoller, 1979).

A collaborative research process can be of immediate and direct benefit to a school and its constituents. It is important that the school and the community gain not only from the results of research, but from the process itself. This means, for example, that teachers, students, and members of the community—as a result of participating in the research process will be more able to articulate problems themselves and to initiate processes to find solutions. The fundamental principle of collaborative

participatory research and its point of most radical departure from orthodox research is that the research process is based on a system of discussion, investigation, and analysis in which the researched are as much a part of the process as the researcher. Theories are neither developed beforehand to be tested nor drawn by the researcher from his or her involvement with reality. Reality is described by the process through which a school, a community, and its teachers, parents, and children develop their own theories and solutions about themselves and their situation (Hall, 1977).

The tradition of the research establishment is hard to change. Too easily, teachers become consultants to rather than full participants in the research process. Too easily, the researcher becomes the sole originator of the research while the practitioner becomes simply the object of study rather than an investigator as well. If teachers are to be full partners in research, they must be coinvestigators who share with researchers the responsibility for the design and execution of the research and for the interpretation and dissemination of the results (Gajewski, 1979).

Knowledge is power. A collaborative action research process which allows for teachers to function as researchers and develops increased capacities of analysis empowers and emancipates teachers by helping them to help themselves, by placing them in consciously critical confrontation with their problems, and by making them agents of their own change.

2. The school is the best laboratory for research. In one school building there probably are more real researchable problems deserving the support and attention of funding agencies than we can imagine. Jackson (1968) says that the classroom teacher typically engages in as many as 1,000 interpersonal exchanges during the course of a six-hour day, frequently averaging 200-300 interpersonal transactions per hour. This observation in itself testifies to the complexity and immediacy of the daily situation in which every teacher is forced to make decisions. A single school is a research goldmine in terms of important questions, variety and richness of data, and numbers of potential researchers. Through inservice education teachers can develop the skills, attitudes, and confidence to function as researchers. One way to encourage teachers to carry out research on their own problems is to support released time so that teachers can reflect on what they do and what they want to do. Another way to encourage teacher research is to publish teachers' work. (Phi Delta Kappa has begun to do this with its publication *Practical Applications of Research*). And still another way is to get teachers to see that research is a form of intellectual inquiry and problem solving and not necessarily a process to be equated with experimental design.

McKenna (1978) observes that teaching becomes most meaningful and productive when teachers regularly and systematically ask themselves why they do what they do and extend that inquiry to assessing the outcomes of the "what." All too often, if and when teachers do these things, they do them solo—behind closed doors with a classroom full of students to be concerned about, at the same time they ask and attempt to answer the profound questions of "Why?," "What," and "To What Ends." There is great promise in the pursuit of inquiry with the collaboration and support of others who have much to contribute to the solution of classroom problems and to the evaluation of the success of instructional practice—particularly researchers and university faculty. The idea of such collaborative efforts has been discussed by Schaefer in his book, *The School as a Center of Inquiry*, and was demonstrated in the 1940s by Stephen Corey and others at Teachers College, Columbia University in action research projects which brought together teachers and professors primarily for curriculum development purposes.

Teacher oriented inquiry and the view of the school and the classroom as the places where the research action is will come about when researchers and teachers change their attitudes and perceptions about inquiry and research. McKenna (1978) speaks clearly to this point:

> *"-many researchers will have to revise their posture that scholars mustn't get their hands dirty with the clay; that the potting must be done by others, once the scholars have prescribed the clay mix and kiln temperature. More specifically, the attitude that you can't learn much in the "messy" situation of the ordinary classroom will need to be replaced with one that accepts real schools as the most appropriate places for conducting research and development. And researchers will need to come to recognize teachers as peers, as colleagues, who have much to contribute to improving the R&D process, from identifying researchable issues, determining research design, data gathering and analysis, to planning programs based on findings. Once these are accomplished, new strategies for conducting research may need to be devised and tested in order to inquire into the multidimensional problems that are identified for study. Teachers on their part will need to reconceptualize their roles to include involvement in inquiry and problem solving on instructional issues. And they will need to gain confidence in their ability to contribute on a parity basis to the research and development process."*

3. There are certain necessary conditions which need to be built into the working environment of the schools if teachers are going to function as researchers in partnership with university researchers.

(1) Time needs to be made available as part of the teacher's regular teaching load for discussion, reflection, investigation, and speculation.

(2) An atmosphere is required in which teachers have the freedom to identify and initiate their own problems for inquiry, to express their ideas and develop their ideas into hypotheses, and to share and defend their ideas with administrators and colleagues.

(3) Technical assistance and support and consulting services ought to be provided when necessary to help teachers (and university faculty) learn field-based research processes.

(4) Reasonable material support for carrying out research and adapting research findings should be available.

(5) University credit, staff development credit, or inservice credit should be given to teachers for conducting research if they desire it.

(6) Alternative methodologies for conducting research in the schools need to be encouraged and taught. Ethnomethodological approaches (Mehan and Wood, 1975 and Carini, 1975) and retrospective analyses (Wise, 1977) seem to be very valuable methodologies for conducting research in site specific field based programs.

4. We need to emancipate ourselves from the straight jacket of experimental design and recognize that good research can be conducted in many different ways. Good research requires common sense. With some training in participatory/observational techniques, case study approaches, the use of audio/video taping systems, personal journals, record keeping, and documentation techniques, teachers in partnership with university faculty can bring about a renaissance of school based research which characterized the "progressive era" in education and contributed major ideas and practices to the education of children.

It is important that university faculty members recognize the rich opportunities they have through involvement in field based inservice education programs for generating research and scholarship to meet their institutions' promotion and tenure requirements. Involvement in field-based inservice education is not irreconcilable with qualitative research. Indeed, for

the many reasons referred to earlier in this chapter the school with all its complexities, problems, and changing dynamics offers the best chances for university faculty, in partnership with classroom teachers, to produce significant and lively scholarhip.

To seize the opportunities available for research in field-based inservice education, university faculty may need to learn how to conduct field-based research and certainly will need to change their attitudes about the nature and character of research. The question of research and promotion and tenure in relation to field based activity is not a simplistic either/or issue as it all too often has been defined. The question needs to be redefined. The issue at hand is how vested personal and institutional interests can be merged in field-based research to serve all the parties involved in collaborative inservice education programs to improve learning for children.

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3 Learning from Research Adaptation

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The idea that much can be learned from research that will improve classroom practice is not new to the educational community. On the contrary, it was exactly this belief that motivated Teacher Corps in 1975 to offer the research framework as one of five approaches to inservice education. What may be new however, is the emerging recognition that the way in which one goes about translating research into practice may influence substantially the outcomes achieved by this approach. What may also be new is the uncomfortable suggestion that the way one chooses to go about this task is in itself influenced by the assumptions and goals one has in mind from the beginning.

A brief illustration may clarify this point. If one chooses to take selected research findings which establish a relationship between specific teaching behaviors and student achievement and train teachers to perform those behaviors, that implies an assumption that teachers are passive consumers of disseminated products of research. This assumption, that findings from research can be transformed into curricular packages for students or teachers, in turn, leads to outcomes which we believe are detrimental to the improvement of inservice teacher education. The first outcome is that it continues to view persons external to the classroom as the "experts" on teaching. Traditionally, textbook publishers to university or school district consultants (even other teachers) are often seen as better

equipped to recommend teaching practice than are classroom teachers. Second, paradoxically, this view tends to perpetuate the "ivory tower" view of university professors since teachers are quick to discern the lack of relevance that many such materials have for their own classroom situations and the unsuitability of some university professors to provide direction for the improvement of classroom practice. Third, this approach tends to provide simplistic answers to very complex questions. Since research typically studies discrete elements of teaching and, therefore, often yields isolated factors associated with specified outcomes, findings must be examined in light of both intended and unintended outcomes when applied to new and different situations. Since individual teachers, students, communities, and schools vary considerably, such research-based packages tend not to be very responsive to unique teaching situations. This approach tends to communicate to teachers that packaged strategies are, in fact, going to solve classroom problems. The resulting disappointment of this, "I tried it and it didn't work" response is ultimately destructive of further confidence in research for informing practice. Finally, while it need not be the case, this approach to the practical utilization of educational research tends to reflect a deficit model which implies that the goal motivating this approach is remediation of the teacher.

These and other concerns (see House, 1973; Clark and Guba, 1965; Berman and Mclaughlin, 1975; and Ward and Tikunuff, 1976), have led to the development of alternative models of research adaptation which attempt to collaborate with teachers in various phases of the research, development, and teaching process. Some involve teachers in many aspects of action research both in their own classrooms and in classrooms of other teachers. Other models purport to involve teachers not only in the research phase of collaborative process, but in curriculum development and teaching phases as well.

While these models represent a step forward in the direction of teacher involvement and thereby provide greater credibility for teachers of products and processes thus developed, they retain a critical shortcoming—the belief the product is the end goal. We suggested this belief is based on a continuing assumption that teachers are to be trained rather than educated, and what teachers need is "hands on" materials developed by other teachers, or "tested" teaching moves which will produce desired pupil gains.

We contend what teachers need is not simplistic answers to questions they have not asked or solutions to problems they have not defined but the capacity to think about teaching, to define their own problems, and to

determine the validity of research to their own classroom practices. They need not be technicians implementing someone else's ideas but thoughtful decision-makers with new ways of reflecting on their own teaching practice.

This is not to say research findings do not have valuable implications for teachers. On the contrary, they provide a unique resource and opportunity for promoting professional development of teachers in a way largely unexplored. Here staff development is based on a belief that teachers in their classrooms are the legitimate decision-makers for what transpires there. In order for their decisions to be productive of desirable pupil outcomes in affective, cognitive, and physical domains, the teacher must have broad conceptual schemes for action. These schemes need to embody both the theoretical knowledge of the researcher and theoretician and the teacher's own practical wisdom. In short the teacher must be a student of teaching and learning, committed to continuous professional development. In addition, teacher educators must also be committed to studying teaching and learning in ways that allow them to learn from and with teachers about classroom realities.

If one assumes the primary goal of translating research into practice is not the development of products (materials or inservice training modules) but the engagement of teachers and teacher educators in a process of mutual professional development, then one approaches that task in a unique way. The way chosen must provide both teachers and teacher educators with opportunities to learn from one another, and to discover that learning together may encourage new ways of thinking about teaching and teacher education. Finally, it must be intrinsically rewarding for both teachers and teacher educators if they are to value such collaboration as a viable inservice model for professional development.

The Michigan State University/Lansing School District 10th and 12th Cycle Teacher Corps projects have developed a collegial model for adaptation of research for classroom practice which has as its goal professional development for all participants. This model is built on several assumptions. First, teachers should be involved in every phase of research adaptation, teaching, documentation, dissemination, and curriculum development. Second, since neither teachers nor teacher educators are fully aware of the potential impact of various research findings or theoretical conceptions of classroom teaching they can both learn from studying ideas together. Third, teachers and teacher educators both have specialized, but different, expertise which can illuminate the practical study of research and its adaptation for curriculum development. Finally, teachers and teacher

educators can learn more together than they can separately as their collective efforts create a synergistic effect.

A Collegial Model

As it has been implemented, there are three phases of this research adaptation model. Phase One accomplishes two important functions: (1) establishment of a collegial relationship, and (2) accomplishment of tasks essential to successful research adaptation. The overall purpose of Phase One is to engage in a series of experiences designed to guide understanding, trust, and credibility for all participants, to explore and test ideas with each other and to experience first hand a systematic process of studying and thinking about teaching with persons who have different perspectives, interests, backgrounds, and expertise. The goal of Phase One is the establishment of a commitment to the study of teaching. Outcomes expected from Phase One are: agreement on a comprehensive conceptual framework based on research or theory, a tested rationale for teaching decisions stemming from the conceptual framework and guidelines for curriculum development, and sample activities, materials, and strategies.

At this point, having had teachers successfully involved in the examination of research and development of curriculum, the tendency is to disseminate collected products to other potential users. It is exactly this temptation that must be resisted, however, if the goal of continuous professional development of teachers and teacher educators is to be realized. Phase Two of the collegial model attempts to continue the professional development of both groups while undertaking the task of dissemination.

During Phase Two, teachers and teacher educators assume new roles which enable them to deepen and broaden their initial conceptual framework, expand their knowledge of acceptable research adaptation for classroom teaching, and gain new perspectives of themselves and the teaching and learning process.

As new groups of teachers engage in a modifed research adaptation process with other teachers and teacher educators, it is likely the temptation to disseminate curricular packages will reoccur. Our experience with the model thus far has convinced us, however, that to do so at the end of Phase Two would also be unwise. We propose, therefore, a Phase Three, designed to build on lessons learned from Phases One and Two be implemented. We envision Phase Three as an in-place inservice mechanism using research adaptation as a vehicle for continuous professional development.

A more detailed description of Phases One and Two will clarify the characteristics and illustrate the potential of this model of research adaptation for professional development.

Phase One

Establishment of Collegial Relationship

A basic assumption of this project was teachers and teacher educators must establish collegial relationships to promote research applications in classrooms. This belief is based on a recognition that substantive change is rarely accomplished by an outsider telling a teacher what research says they ought to be doing. Teachers need to feel support for their daily struggles, and encouragement from someone they trust to try new responses to teaching demands. We believe this support can be provided by teacher educators committed to establishing collegial relationships with teachers.

Historically, teachers and teacher educators have not enjoyed such collegial relationships. At least four factors contribute to this state of affairs. First, both groups tend to have negative stereotypes about each other, e.g., the "ivory towered" professor and the "mindless" teacher. Second, neither group is seen as credible in the eyes of the other group. Third, there is a lack of reciprocity in relationships between the two groups. Teacher educators tend to be perceived as the helpers (givers, tellers) and teachers as the ones in need of help (takers, learners). Seldom are requests initiated in the opposite direction. The notion that teacher educators gain from the relationship has had little credibility with teachers or teacher educators. Finally, both groups hold assumptions about each other that do not facilitate the establishment of collegial relationships.

An important aspect of Phase One was deliberate attention to modifying non-facilitative assumptions and stereotypes through establishment of mutual credibility and reciprocity. Table 2 presents the design used throughout Phase One for establishing collegial relationships. The rows represent types of shared experiences incorporated into inservice activities. The columns indicate intended outcomes that guided interactions. The strengthening of facilitative or alteration of non-facilitative assumptions was a continuing process affecting on both strategies and outcomes.

Throughout Phase One, an attempt was made to examine assumptions of both teachers and teacher educators. The belief that both were capable professionals concerned about improving their teaching effectiveness was encouraged. Also fostered was the assumption, given support

Table 2
Establishing Collegial Relationships

	Intended Outcomes			
Intent of Strategies	**Building Mutual Credibility**	**Changing Negative Stereotypes**	**Reciprocity**	**Strengthening or Altering Assumptions**
Shared Expectations and Concerns for Research Adaptation, Classrooms, Personal Goals, Life Events				
Shared Tasks, (Research, Development, Teaching & Reporting)				
Shared Experiences: Social (Parties, retreats, after hour drinks). Professional (In Seminars, classrooms, on campus colloquia conferences).				

for exploring new directions, both groups would adjust their teaching behaviors. Other assumptions about teachers and teacher educators encouraged were: (1) individuals need to feel respected and appreciated as contributing members of a team, (2) individuals have diverse strengths to contribute to a joint enterprise, (3) earned membership in a group project fosters intrinsic valuing of cooperative endeavors.

These and other assumptions guided efforts to produce other intended outcomes. Credibility of teacher educators with teachers was initially established through their willingness to "hang around" in classrooms, getting to know teachers' and students' behaviors and needs, and providing another pair of hands for any tasks that needed doing. Being there and working with teachers in their classrooms establishes a kind of credibility that is critical. Being able to offer and demonstrate alternative research-based teaching actions is also important. Empathy for the teacher's daily demands probably cannot be built otherwise. Teachers established their credibility with teacher educators through sharing of their reflection on teaching situations, their concern for students' needs, and their desire to learn new ways of thinking and doing.

As both groups learned more about each other, negative stereotypes tended to disappear. One stereotype, however, required continued concen-

Figure 3
Phase One:
Tasks and Participants

tration through both phases of the project. The difficulty in breaking down this stereotype was the tendency to perceive teachers as technicians and teacher educators as experts. The stereotype was perpetuated by both groups. Teachers typically deferred to teacher educators, and they, in turn, were often willing to be seen as "experts." In reality, both groups had expertise in differing but important areas of teaching.

Establishing reciprocity was seen as central to the collegial relationship. This goal represented one of our most difficult challenges since both groups tended to reinforce the deficit model of inservice teacher education. Tasks which required collegial learning and doing were critical to the establishment of reciprocity as was the sharing of procedural and record keeping tasks. Gentle confrontations of behaviors and related expectations also contributed to a growing awareness of the potential for reciprocity.

Strategies were incorporated into this phase which would contribute to the breaking down of the technician-expert stereotype and to facilitate achievement of the reciprocity goal. A number of these strategies were designed to facilitate both groups getting to know each other personally and professionally. Activities provided opportunities to share expectations, tasks, and experiences. Through both planned and spontaneous social occasions, individuals learned about each other and developed genuine feelings of concern. Through sharing of ideas, assumptions, attitudes, and feelings generated through this research adaptation process, individuals came to value each other as professionals.

The Process of Research Adaptation

The importance of the collegial relationship was apparent as teams of teachers and teacher educators accepted the challenge of translating research into practice. Although different teams elected to study different content and related research findings, the tasks each pursued were relatively consistent across both 10th and 12th Cycle projects. They included four specific tasks.

Task one: Organization of a conceptual framework.

The need for a conceptual framework to guide developmental efforts was based on the belief that one criterion of professionals is that they behave according to a theory or rationale. The goal of educating teachers to become proactive decision-makers, curriculum developers and responsible, articulate change agents assumes that teachers have a comprehensive,

well organized conceptual framework that helps explain everyday events and provides direction for action.

The first step toward developing a conceptual framework was a comprehensive search of relevant research and related literature in each content area. This step was accomplished in three ways. In some teams, teachers elected to go to the university library (during the regular school day) and search the literature. In other cases, graduate students assigned to the teams performed this initial task. In still other cases, university professors conducted the initial literature search. In all cases, guidelines for selecting relevant literature were prepared by teams on the basis of the common understanding of human growth and societal needs developed in a summer workshop. All pertinent reports and articles were duplicated for review by the entire team.

Step two of this first task then became the indepth examination of the relevant literature concomitant with reality-based dialogue concerning implications for teaching and learning. It was during this step that dissonance was often generated based on differing perceptions of events and analyses being discussed. As teams struggled with new ideas and recommendations, they altered their perceptions and deepened their awareness of both the problem dimension and each other. The result of these struggles was agreement on desired outcomes and criteria for developing activities, materials, and strategies based on the conceptual framework. For example, at this point the reading team had agreed upon the goals of reading for both information and pleasure and the need for a hierarchy of skills as an organizer for reading instruction. The math team determined the need to provide concrete classroom analogues of out-of-school applications of mathematics and undertook a community survey to enlarge their understanding of relevant math applications. The social-emotional team agreed upon the need to build positive self concepts and to express natural human emotion constructively within the context of the classroom.

As desired outcomes and related teaching behaviors were identified from the research, teachers became aware of a need to improve specific skills. Skill development was accomplished through a variety of means depending on the content area and expertise available. When either a teacher or teacher educator felt competent to do so, they demonstrated the skill with children for other teachers and teacher educators. When neither the teacher nor the teacher educator felt competent with a recommended procedure, various approaches were tried. Sometimes they team-taught a group of youngsters and debriefed afterwards. Sometimes the teacher taught while the teacher educator observed and described events.

Sometimes the teacher educator taught while the teacher observed and noted outcomes, and sometimes they role-played the procedure in a seminar with all participants critiquing and offering suggestions.

The cumulative impact of this serious consideration of the relationship of theory and research to classroom practice was an increased valuing of research and theory and a sense of personal power over decisions as to what and how to teach.

Task two: Development of units of instruction.

A critical feature of task two was the challenge of creating materials, activities and strategies consistent with the conceptual framework.

Together teachers and teacher educators pursued a systematic process of curriculum development that drew upon their individual expertise and allowed both parties to learn from and with each other. Through classroom teaming and out-of-class conferences, they studied the needs of learners and explored potential responses. Where particular pupil learning or management problems were identified, brainstorming generated alternative lessons, strategies, or activities that might be tried. Plans for managing and organizing lessons were incorporated into all unit designs. As teacher and teacher educator investment in thoughtful planning developed, the need to evaluate intended and unintended learning outcomes was identified and ways to collect information that would answer this question were incorporated into unit designs.

It was hypothesized that involvement in task two was critical to the development of habits of inquiry and problem solving needed for continuous professional development. During this step in the process, teachers had opportunities to reflect on their teaching situations in a non-threatening supportive environment. They were encouraged to create new ways of responding to problems they had identified, thus developing a habit of reflective thinking about practice which we believe is a prerequisite to becoming a student of learning. Evidence that the systematic process practiced here had an effect was seen in teacher behavior during later project phases.

Task three: Classroom trials of planned units.

The test of planned units, of course, is their implementation in regular classrooms. During task three, teachers and teacher educator teams implemented lessons with children. Whether they team taught, or taught

separately with the other partner observing, teaching teams appeared to learn a great deal from this task. Teachers gained confidence in their ability to use new and often different approaches to teaching. They encountered both success and disappointment as some strategies and activities worked better than others, and they learned to risk trying new techniques for which there were no guaranteed outcomes and discovered that much can be learned from so-called failures. In short, they experienced first hand a process of planned action and critical analysis of outcomes that encouraged them to see teaching situations as opportunities to learn.

Teacher educators found this task equally rewarding. Their participation in teaching and observing in classrooms provided them with concrete information about research applications that were invaluable. The feedback they received allowed them to modify their interpretations of theory and its usefulness for classroom practice. Many of the practical teaching problems that emerged led to development of new activities or strategies to meet the needs thus generated. For example, it was learned that implementation of Gordon's (1974) no-lose conflict resolution strategies required subtle refinements not reported in the literature. Similarly, problems in pretest-posttest items developed for reading objectives were uncovered and remedied. Since teacher educators teamed with more than one teacher, their perception of the range of acceptable ways to implement various ideas was expanded and enhanced. Through the experiences of mutual sharing of feedback and support, team members grew both personally and professionally.

Task four: Documentation/evaluation and dissemination of activities.

During task four a collegial model for documentation/evaluation and dissemination was developed. This model was designed so that there was collegial involvement in both the process of documentation/evaluation and in the resultant product. The model went through several revisions as we tried to achieve our goal. We went from a model in which teachers and teacher educators were only representatives in the planning of the documentation/evaluation activities to a model where teachers and teacher educators have ownership of both the process and the products. They were no longer just data suppliers but rather active participants (decision-makers) in all phases of the documentation/evaluation model. The ultimate goal of this model was to have documentation/evaluation be a

continual process that teachers and teacher educators would do for each other as well as for themselves.

There are four key assumptions to this model. First, both teachers and teacher educators should be involved in all phases of documentation/evaluation of the project. The documentor/evaluator still has the ultimate responsibility for these activities. The reason for this assumption is the belief that more meaningful and accurate data will be collected when all participants are involved. For example, we can only begin to assess the impact of research on classroom practice if we include the contextual information and insights that only teachers can provide since they are the experts in their own classrooms.

Second, the documentor/evaluator has to be active within the school setting. He or she must spend time establishing credibility and dispelling negative stereotypes about the role. This trust relationship cannot be established when the evaluator is rarely seen and then only with paper and pencil in hand. Time must be spent "hanging around" and gaining entry into the organization. Once this trust is established the tasks of documentation/evaluation are far more meaningful and nonthreatening.

Third, documentation/evaluation must be a continual ongoing process. Teachers and teacher educators need to be able to document and evaluate daily classroom impact as well as overall project goals. It is important for them to determine how they assess the success or failure of implementing research findings in their classrooms. These skills will also help make the participants decision-makers and problem solvers. By treating this as a continual process, the immediate feedback serves an important management function. Problems can be identified early and the necessary alterations can be made at both the individual and project level. The immediacy of feedback also convinces participants of the utility of these activities.

Finally, we need to develop techniques that maximize the information (data) gained but which are efficient and do not place unnecessary demands on the teachers and teacher educators. We have found that summary sheets of meetings, checklists, use of index cards for daily record keeping and interviews have helped us to maximize our data.

Perhaps an example will help to clarify the model. After studying the research literature in the multicultural area and completing the other tasks in Phase One, teachers wanted to assess the classroom interactions of their students. After some discussion the documentor/evaluator suggested that sociometrics might be an easy technique that would provide them with the information they wanted. The teachers decided to try them. When the data

were analyzed, ethnic group membership did not turn out to be as salient as hypothesized. Rather than leaving the issue there, the teachers generated hypotheses about what variables did matter. Further analyses were done based on the teacher's suggestions. The final results were consequently more meaningful because of the teachers involvement. Teachers were able to take these findings back into their individual classroom and make some needed adjustments instructionally.

This collegial model was also extended to the dissemination activities. It was the belief of the project participants that everyone shared the responsibility for dissemination not just the university personnel. For example, in spring of 1978 four teachers and three teacher educators presented a colloquium to the Institute for Research on Teaching based on 10th cycle experiences. Another one took place in March this year. The teachers reported that they found this to be a particularly rewarding experience because they were asked to come to campus and participate on an equal basis.

Another example of collegiality in dissemination is the number of articles being written jointly by teachers and teacher educators. This joint work was initiated by teachers who wanted to be sure that what they had learned through research adaptation was shared through publications relevant to teachers as well as academicians.

In summary, the use of this collegial model for documenting/evaluating the impact of research adaptation on classroom practice leads to a more meaningful and valid portrayal. Our initial data suggest that it creates ownership of the data by the participants as well as a new vision of its utility. The ultimate testimony to this fact occurred when teachers generated their own documentation/evaluation plan and a set of research questions.

Having completed phase one successfully, we now have:

1. A set of teacher and teacher educators who have developed collegial relationships;
2. A set of teachers and teacher educators who have increased and enriched their schemas for applying research findings to classroom practice;
3. A set of teachers and teacher educators who find professional development intrinsically rewarding;
4. A set of teachers and teacher educators seeking an opportunity to work with a new set of teachers and teacher educators in order to continue their own professional development and extend and broaden their collegial activities.

Phase Two

At the end of Phase One of this collegial research adaptation model, teachers and teacher educators have built workable conceptual frameworks in each curricular area that serve as guides for developing and using classroom strategies, activities, and related materials. They have explored new ways of thinking about teaching and teacher education. They have had success in finding new ways to work with children, other teachers, and teacher educators. Changes in teacher vocabulary, requests for continued association with teacher educators, expressions of personal and professional growth perceived by participants, and descriptions of curricular materials, activities, and strategies all indicate that Phase One has accomplished its purposes. In short, Phase One has yielded both satisfactory product and process outcomes.

Expanded Collegial Involvement

To return to our earlier argument, we believe that the decision we make about what and how to disseminate outcomes will impact the ultimate value of such products for teacher education. Our rationale for choosing a continued partnership design is based on acknowledgement of the following:

1. Teachers will use research findings and theoretical conceptions of teaching to guide their teaching decisions if they experience first hand the relevance of these tools for themselves as classroom teachers.
2. Teachers and teacher educators both have contributions to make in promoting the professional development of other teachers and teacher educators.
3. Persons who have contributed to development of new approaches to teaching are a valuable resource for facilitating the growth of others.
4. The old adage, "you never really learn something until you have to teach it," is worth pursuing as an inservice model.
5. Teachers and teacher educators will continually reflect on their teaching if they find these activities intrinsically rewarding.

During Phase Two, the project attempted to build on these assumptions and create a staff development model for dissemination that places

Task 1
Involvement of Teachers and Teacher Educators in New Roles
Original Teachers
Original Teacher Educators
New Teachers
New Teacher Educators
Task 2
Involvement of Teachers and Teacher Educators in Development and Implementation
Task 3
Reaching Closure on Phase Two Experiences

Figure 4
Phase Two:
Tasks and Participants

classroom teachers in a role traditionally assumed by teacher educators. It was assumed that the staff development experiences of Phase One had resulted in teaching having developed isolated action schemas which had not yet been integrated into a stable well organized conceptual framework. The need to articulate a rationale and brainstorm concrete applications of the research framework in order to teach others was seen as a powerful motivator for developing a more comprehensive framework to guide research adaptation for classroom practice. We further posited that the engagement of teachers in a new role as teacher educators would force individuals to observe and analyze aspects of teaching (e.g., management and organization of the environment and provision for special learning needs) that may be taken for granted in one's own teaching situation. Thus in Phase Two, original teachers and teacher educators worked with new groups of teachers and teacher educators to develop this design which can be considered both a model for research adaptation and a staff development model for teachers and teacher educators.

Continued professional development of the original group was accomplished in three ways. First, teachers worked with new teachers in one-on-one dyads to apply the research based framework to their teaching situations. Teachers, working together, assessed needs, generated alternative responses to problem situations, and planned and carried out activities and strategies in each other's rooms with each other's students. Second, teacher educators continued to work in one-on-one dyads with original teachers to pursue continued applications and refinements of research based concepts for classroom instruction. Third, the original teacher educators teamed with university instructors new to the project as they pursued a modified Phase One with a new group. Thus, each group continued original associations while expanding its contact with new groups of teachers and teacher educators.

A critical aspect of this model was the opportunity it provided for teachers to work with other teachers in translating research into classroom practice. Our purposes in designing this approach were: (1) to promote a broadening of the original conceptual framework through continued experience testing and refinement, and (2) to further expand the habit of reflection on teaching practice initiated in Phase One. We further believed that teachers working with other teachers might produce new insights about teaching and teacher education. Because this aspect of the model is relatively new, we will share dimensions of this experience that we believe may be productive of further study. The three major tasks used as organizers for Phase Two are described below.

Task One: Involvement of teachers and teacher educators in new roles.

Participation in a common group experience marked the beginning of this phase for both original and new teachers and teacher educators. The five outcomes generated in this first task are essential for the development of collegial relationships and curriculum. First, individuals were able to interact with teachers and teacher educators with whom they might be working with later in the year. Second, the ranks of the established group of original participants were opened. This was important if new members were to establish membership in the group. Third, original members were able to view the coming experiences as a new beginning. Fourth, participants gained the factual and procedural information necessary for beginning Phase Two. Finally, the shared experience provided a common basis for reflection during later discussion by all participants.

The initial task during Phase Two also involved a set of discussions focusing on three major topics. One topic centered on identification by individuals or personal contributions they expected to make to the group and to project goals. A second topic involved the identification of personal and professional outcomes or gains which each individual desired. Identification of desired curriculum outcomes was the concern of topic three. The purpose of these discussions was to begin to establish: (1) ownership of the role to be enacted by the participant, and (2) responsibility to the group.

Experience with the original teachers and teacher educators suggest that the group is ready to begin Phase Two tasks when each individual accepts a written summary as reflecting both individual and group ideas. Again, this written summary serves as the first concrete product of the group's efforts. At the end of this step, the group begins to form cohesiveness and individuals develop ownership of their roles in staff development. While it is important that the group exhibits a common purpose, further attention to developing "groupness" at this point might work against project goals. The need is to focus on specific tasks.

Task Two: The involvement of new teachers and teacher educators in the development and implementation process similar to Phase One.

This task was further defined in terms of its two major needs: (1) the development of a conceptual framework and research-based rationale for

teaching decisions, and (2) the design and implementation of classroom materials, activities, and strategies. Teacher educators, both new to the project and experienced project staff, assumed responsibility for attacking the first need. Teachers who had experienced Phase One of the project, together with experienced staff members, assumed responsibility for working on the second need with the new group of participants. Thus we had an inexperienced group of teachers working with experienced teachers and teacher educators on one aspect of their development while also working with both experienced and inexperienced teacher educators in a different but related context.

Pursuit of this task allowed participants to accomplish several related project goals. Reciprocal relationships continued to develop as the habit of seriously studying teaching was extended. As a supportive environment for analyzing teaching and learning was established, collaboration skills continued to be refined and became intrinsically rewarding. The need to disseminate process as well as product information to the new people involved in this phase created a need to communicate and collaborate with others.

This need acted as a catalyst and organizer for seminars. A better understanding of the demands of collaboration was seen by participants as essential for undertaking this task. As participants attempted to articulate important aspects of collaboration they came to comprehend and appreciate subtleties not apparent before. An assessment of both individual and group knowledge and skills and their fit with task demands of applying research-based activities and strategies to new teaching situations also forced participants to integrate their learning from Phase One activities and expand their conceptual framework.

Seminar strategies and activities that facilitated meeting the above needs were: (1) brainstorming sessions, (2) reviewing first year reports of curriculum ideas, (3) discussing position papers on collaboration, (4) developing research-based conceptual framework position papers, (5) developing guidelines for collaboration, (6) role playing, and (7) initial informal meeting with new participant team mate.

While data are not fully analyzed as yet, a number of outcomes are apparent as a result of pursuing this task. Early analyses indicated the following:

1. Teachers and teacher educators are able to articulate the research-based conceptual framework which will guide their curriculum development.

2. Teachers and teacher educators are able to generate alternative strategies and activities for someone else's classroom situation.
3. Teachers and teacher educators are able to help someone else adapt ideas to suit the other person's teaching style and personality.
4. Teachers and teacher educators communicate valuing of a range of adapted strategies and activities.
5. Teachers increase their use of a systematic process for studying their own classroom teaching and student learning.
6. Teachers share (cease covering up, or becoming defensive about) concerns with peers and teacher educators to gain insights and problem solve not simply to release frustration.

Having assessed needs and developed operational definitions of their roles as teacher educators, teachers began working with their teacher partners (one original teacher with a new teacher). As pairs worked in one-on-one dyads, a weekly seminar of original teachers and teacher educators provided an opportunity to share experiences. Teachers learned new strategies and alternative ways of handling situations they were encountering from these debriefing sessions. Teacher educators broadened their understanding of the dissemination process being used and became aware of problems with the original conceptual framework.

Task Three: Reaching closure on Phase Two experiences.

Toward the end of Phase Two, participants need to identify strategies which will bring activities to a logical conclusion. This aspect of group life is seen as important since participants need ways to assess outcomes from their efforts and, hopefully, feel a since of accomplishment. Individuals who have participated in cohesive groups typically experience feelings of loss when groups end. Formal attention to group accomplishments and consideration of future directions will help relieve possible fears related to the loss of mutual support and isolation of reentrenchment.

Phase Three

Institutionalization of the collegial model of research adaptation for professional development is the purpose of Phase Three. Simply, this phase is a continuation of the Phase Two model reenacted by the teachers and teacher educators who were new during Phase Two. As did the original

group this new cadre of professionals continues their development as they work with a new set of teachers and teacher educators. Thus we visualize an in-place inservice mechanism for continually involving new groups of teachers and teacher educators with experienced teams. This long term involvement, we believe, holds promise for a type of professional development experience that updates both teachers and teacher educators and subjects research findings to rigorous and concerted efforts to make them useful to practitioners at both public school and university levels.

Lessons Learned

In the type of collegial professional development model we have described, we have made observations and inferences which can provide direction for further testing of this model.

Insights About Teacher Involvement in Research Adaptation

1. When teachers work with other teachers they discover the need to think about what that other teacher can do, not just what they would do in their own classrooms.
2. When teachers work with other teachers they discover the need to adapt strategies that are compatible with the teacher's natural classroom organization and teaching style. For example, if the teacher is unaccustomed to having children out of their seats, creative drama activities must begin with things that can be done while in seats or perhaps standing next to their seats. Teachers observe that unless strategies fit into existing classroom practices, they are not likely to be incorporated into a teacher's repertoire.
3. When summaries of conceptualizing are described, the language used must be the same or very close to that used by the group in discussions. If new organizers or constructs are used, the group may not recognize the product as their work and a lack of ownership will result.
4. When teachers and teacher educators have had to articulate a rationale and generate examples for other teachers, they demonstrate a new capacity to generalize from specific examples that do not correlate exactly with their own situations.
5. When teachers are engaged in teaching other teachers, their own use of relevant activities and strategies shows a marked increase.

6. When two teachers who have participated in original development of Phase One continue to team during Phase Two, they appear to develop more complex strategies requiring greater teacher risk taking. For example, one team planned a unit incorporating human drama rather than pre-drama warmups or story drama activities. Human drama appears to require higher risk on the part of the teacher because there is no script and the teacher must feel competent to handle spontaneous events as they occur.
7. Teachers engaged in teaching others appear to have a high investment in having "their teacher" be successful with the new curricular approach. A failure for their partner may be interpreted as a failure for them as a teacher educator.

Insights About Teachers and Teacher Educators Developing New Collegial Roles

1. When all participants fully share assessing needs and planning implementing responses, there is greater ownership of outcomes.
2. When teachers and teacher educators begin to find collegial inservice rewarding, there is a noticeable increase in attendance and on-task behavior during sessions. There is also a discernible decrease in tardiness, off-task discussions, paper grading, knitting or doodling. Personal concerns that do arise at this point are handled constructively with a minimum of class time used.
3. When teachers and teacher educators are first attempting to define their roles, tasks and needs, it is natural for participants to skip around in their discussion of topics. While this movement across topics may appear to be off-task and could be inferred to be an indicator of lack of commitment to the project, it is, in fact, unavoidable as individuals attempt to organize their thinking. This characteristic is to be expected when no one has "the answer" or is trying to get a hidden agenda approved. If the facilitator is unaware of this natural behavior, he or she might attempt to direct or tighten up the discussion inappropriately.
4. In planning seminars with teachers and teacher educators that are truly collaborative and developmental, the facilitators must provide sufficient structure to guide interactions and ensure movement while allowing the content of discussions to be flexible and reflective of group needs. Three components appear to provide this structure: (a) having a printed agenda for each session; (b) having a

period at close of each session to summarize individual and group positions; and, (c) having a planning period at the end of each session to state needs and activities or topics to be pursued at the next session.

5. During developmental sessions it appears to be necessary to respond to needs identified by participants for materials, summaries or reviews of past conceptualizing or experiences, or new search of literature. This appears to be essential even when the facilitator recognizes that the requested input will not produce the desired ends of the group. It is assumed that a certain amount of "dead-ending" is inevitable when people are conceptualizing. If the facilitator provides too much corrective direction at this point, he or she will reinforce the stereotype that he/she has the answers and that the rest of the group is only trying to discover what is already known. Meeting the group needs to explore their own directions has a self-correction value in that participants soon discover unproductive directions and reshape their developmental efforts.
6. When diverse groups attempt to collaborate, it is important that they also have opportunities to discuss their experiences within their own constituent groups. This is not to be construed as "we against them" discussions. Rather, it is sometimes helpful to discuss frustrations with other similar individuals who can help clarify issues and problem solve new approaches to discomforts generated by the experience. A cautionary note may be in order, however. It is inevitable and natural that such discussions will occur. When a group recognizes that this is happening, however, it should question how and why they are having the discussions. This may be a clue to a problem which requires joint deliberation.
7. In adapting research for classroom practice, there appear to be some responses that are natural to the process. There appear to be critical points (stages) that individuals have to work through. For example, when you have done all the planning you can do and it's time to really do something, there may be resistance to starting. This resistance may take the form of illnesses, forgotten appointments, misplaced materials, new objections to the theory, or concerns about specific children. At such times, it is important to provide support for concerns, but firm insistence that "the only way we'll know is by trying" is also critical. Suggestions for reducing anxieties may include ways to simplify the activities, strategies for stopping if things get out of hand, or ways to "try a little piece".

Too much time spent in anticipation only generates greater anxiety. The need is to get on to a concrete experience. It is important, in these ways, to shape an attitude of learning from experiences and reduce the investment in having "perfect" lessons.

Insights About Teacher Educators Involved in Collegial Research Adaptation

1. Not all teacher educators have propensities for collaboration. Some content specialists tend to focus almost exclusively on content questions and ignore human factors in the learning situation. They also tended to interpret a criticism of the content as a criticism of them personally.
2. Teacher educators reported a high valuing of working in teams with other teacher educators. They felt the support they received from each other sustained them when the going got rough.
3. There was evidence that teacher educators learned from the modeling of other teacher educators.
4. Teacher educators who had not had personal classroom teaching experience tended to view teacher behavior as either right or wrong, rather than, existing on a continuum of appropriateness.
5. Teacher educators who had not had previous field experience tended to be uncomfortable "hanging around" with teachers in classrooms. Initially, it was helpful for them to have specific tasks they could do with teachers or students to relieve their discomfort and help them fit into this new situation.
6. When teacher educators spend time in classrooms, it is important that they talk with teachers about their perceptions. No feedback from a teacher educator is often perceived by the teacher as negative feedback and unhelpful.
7. Teacher educators who are experienced in classrooms find it difficult to know what to say when they have observed an event that distresses them. They need help communicating their concerns objectively and constructively.
8. When teachers and teacher educators collaborate on the implementation of classroom strategies, an analysis of outcomes may reveal holes or gaps in the conceptual framework which provide direction for continuous development.
9. When an inservice experience is meaningful to teachers, external factors, such as problems with the principal, will not interfere with

project activities. In fact, the facilitator can refocus concerns using problem solving approaches developed thoughout the inservice. As a result, teachers recognize their constructive alternatives to dealing with the concern and it does not occupy a disproportionate amount of teacher time or energy.

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The two previous papers introducing this section were primarily conceptual descriptions of the research adaptation process. As noted, research adaptation is a highly malleable process so that staff development efforts incorporating research adaptation will show variations in philosophy, implementation and content. The next three papers in this section are examples of the process described in Chapters 2 and 3 reflecting the variations possible in research adaptation.

Spaulding describes an approach to research adaptation involving five components, each of which involved adaptation of a specific body of research. Each of these components, when compared to the continuum in Chapters 1 and 2, have a different orientation. While the San Jose project can be classified as an adaptive approach, the reader will be able to see separate approaches ranging from adaptation to replication.

Bullock writes of an approach to implement a diagnostic -prescriptive instructional program in mathematics. Unlike the project described in Spaulding's paper, this project focused on a single body of research — a task integration model for diagnostic and prescriptive instruction. Since this model combines previous ability training efforts and task analysis models, equal emphasis was placed on both the student and the content. While the results of this adaptation were not as extensive as hoped for, the reader will find an interesting discussion of an effort to adapt a single piece of research.

Oja's paper describes a staff development effort in psychological education. Unlike the other two papers just described, the staff development effort at the University of New Hampshire project did not focus exclusively on professional skills training. Instead, by adapting recent research findings on cognitive-developmental growth, the project attempted to promote teachers' own cognitive-developmental growth.

These next three papers describe examples of research adaptation showing highly adaptive orientations. They are, nevertheless, also quite different, allowing the reader to better appreciate the many ways research adaptation can be used in staff development.

4 Inservice Education Through Research Adaptation

Robert Spaulding

The San Jose State University Teacher Corps project was initially funded in June 1975 as a Cycle 10 project. It was refunded at the same site under Cycle 12. The Alum Rock Union Elementary School District was the local education agency (LEA) and the site of the program was a K-5 elementary school. During Cycle 10 technical assistance to the project was provided by the Far West Laboratory for Educational Research and Development. When the project was first funded, a management "consortium" was set up, consisting of representatives of the Alum Rock Union School District, San Jose State University, and the Far West Laboratory. In addition, Mel Semmel of Indiana University and Bruce Joyce of Stanford University participated in the Consortium as principal subcontractors. In the Spring of the first project year, the management Consortium was expanded to include representatives of the community, the teachers and the interns. When refunded as Cycle 12, the Far West Laboratory was not included as a participant.

Cycle 10 Project Goals

The San Jose State Teacher Corps project was one of those which had an adaptation of research to teaching thrust. The overall goals of the Cycle 10 project were:

- to develop and test an inservice/preservice teacher training program that demonstrates the adaptation of research to teaching; and through this program,

- to improve the learning outcomes of students, particularly those students who are having difficulty learning, by increasing teachers' awareness and control of their behavior, by improving their decision-making capacity, and by increasing their capability for self-training and self-analysis.

Research Bases

There were five components in the Cycle 10 project, each of which involved adaptation of a specific body of research.

Component I: Self-Analysis of Teaching through Computer Assisted Feedback.

This component of the training program was to build on the research conducted by Mel Semmel at Indiana University on use of the Computer Assisted Teacher Training System (CATTS) for feedback of observational data to teachers. It was expected that the feedback system would help the teacher to study his/her interaction with a single child, who would be selected by the teacher because of some learning problem. With staff guidance, the teacher would decide what teaching procedure might work best with the child, and would also determine what part of the interaction would be studied. To help the teacher study this interaction, trained observers would watch the teacher and pupil working together and code the interaction on a Datamyte or Micon recorder. These data would then be sent over the telephone to the Far West Laboratory and the computer would send back a graph or some other easily-read display of information for the teacher to see. To help the teacher understand the computer display, a person trained in both educational research and counseling (called the research counselor) was to be available. As a result of this type of study, it was expected that teachers would identify which procedures worked best for particular pupil learning problems.

Component II: Models of Teaching.

The models of teaching component was to build on the research conducted by Bruce Joyce at Teachers' College, Columbia and at Stanford University on training in the use of instructional models and their effects on teaching style. Through the use of models, teachers can design a wide range of learning environments. Different models of teaching stress different skills, such as group process, understanding feelings or developing

concepts and thinking processes. The work of Bruce Joyce and Marsha Weil, as expressed in their book *Models of Teaching* (1972), was the major source for the training.

Component III: Learning Styles of Students.

This component built on the research of Robert Spaulding which was conducted in the Education Improvement Program at Durham, North Carolina and was continued at San Jose State University. As in the "self-analysis of teaching" component this approach used a trained observer. Teachers were expected to select pupils who were not responding or behaving as well as they might and the observer would take careful notes over several days to discover the pattern or "style" of learning that each pupil showed.

After studying the classroom learning "styles" of the pupils, the observer would show the teacher the results of her observations and they, together, would work out a plan to improve the learning situation for each pupil. Changes in seating arrangements, ways in which assignments are made, ways in which disturbances are dealt with, would be suggested and agreed upon. Once a plan had been worked out the observer would visit the classroom regularly and keep notes on the pupil's responses to the new plan. The notes would be shared each time with the teachers and adjustments to the plan would be made if needed. The data gathered each day were to be recorded in a table (or on a graph) so that the teacher could easily determine how the pupils' learning styles were changing as a consequence of the planned treatments in the classroom.

Component IV: Teacher Decision-Making.

This component of the project grew out of the research on decision-making conducted by Greta Morine-Dershimer in the Beginning Teacher Evaluation Study in California and by Bruce Joyce at Stanford University. This component was to build on the training of the other three components. It was believed that teachers would be able to use all of this training in making decisions about classroom instruction. For example, teachers who had training in all three components would have:

1) studied their own teaching to learn which procedures worked best for particular learning problems;
2) learned several new teaching procedures (models); and
3) identified their pupils' individual learning styles.

Teachers should be able to bring all of this information together to make decisions about how best to work with the various pupils in their classrooms.

As part of this component, it was also expected that teachers would study their decisions. For example, they would play back a videotape of a lesson and talk with an interviewer about the decisions they made during the lesson. This could make teachers more aware of their decisions, and could also help them identify what they paid most attention to in their thinking about teaching and learning.

Component V: Applying Contemporary Research Findings.

This component of the training program was expected to help teachers find out what was currently being learned by researchers about effective teaching. As teachers identified a specific concern, they could be provided with relevent data from the studies that had been and were being conducted around the country. The Far West Laboratory planned to collect this information about current research and store it in a data bank, making it easy to select information related to teachers' classroom concerns.

Since contemporary research findings could relate to a variety of areas, including teaching behavior, strategies of teaching, pupil learning styles and teacher decision-making, it was expected that this component would relate to all other components.

Outcomes of Cycle 10

Teachers reported three major changes in their professional communication patterns, which they attributed to their activities in the project. Their reports are corroborated by the observations and records of project personnel, and by the observations of outside visitors to the project. The changes were:

1. teachers "talk to themselves" more; that is, they are more introspective about their teaching and more aware of the instructional decisions they have made and are making;
2. teachers talk to each other more; they share information and materials, compare notes on classroom activities, show each other

videotapes of their teaching, and discuss ways to improve instruction; and

3. teachers enjoy the shift in content that has occurred in faculty meetings, where more time has been devoted to inservice training activities and teacher reports on curriculum changes.

Three important curricular changes occurred in the school program. Intermediate teachers organized a new ungraded math program to provide more highly individualized pacing for pupils. They designed diagnostic tests to identify skill profiles for each pupil, then organized classes so that pupils could move from area to area as they mastered each essential skill. This program operated throughout the second year of Cycle 10 with a high degree of success, and the teachers continued to develop the program in Cycle 12.

The Outcomes of the Research Adaptation Process During Cycle 10

The research bases on which the 10th Cycle project was designed were decided upon prior to the selection of the specific school site. The original needs assessment for the project proposal was a general one, relating concerns of the school district to research that was available for adaptation. In the early months of the project a more specific needs assessment was conducted through interviews with teachers, administrators, and parents at the school site, and activities were redesigned to respond to the needs most commonly expressed. Periodic evaluation and planning sessions were held throughout the project with all participant groups, so that the needs assessment was updated on a regular basis.

The feedback system, which utilized the computers at Far West Laboratory and at Stanford University, slowly became a reality. Three basic coding systems were used to provide teachers with feedback on teaching and learning styles, and to document changes in teacher and pupil behavior related to training. The Teacher Innovator System (TIS) provided information on patterns of interaction between teacher and pupils and reflected changes in interaction patterns related to use of various models of teaching. The Coping Analysis Schedule for Educational Settings (CASES) provided information on pupil learning styles and changes in pupil classroom behavior over time. The Spaulding Teacher Activity Recording Schedule (STARS) gave information on teaching behavior, and reflected teacher use of treatment schedules for particular pupil learning styles.

The project experienced the normal (and some abnormal) difficulties in getting computer programs designed and operating. At the end of Cycle 10, the data collected were stored in both computers and with some difficulty could be fed into or retrieved from either computer. A computer terminal at the school site was connected on a time-sharing basis with the Stanford computer.

In addition to the computer-assisted feedback system, a documentation system was created to store data on classroom instruction and management. A resource bank of information on contemporary research for use by teachers was also developed. This development activity was conducted by Far West Laboratory staff members attached to the project, with the assistance of teachers at the school site. Types of research topics of interest to teachers were identified, and a format for presentation was designed. A prototype bank was developed, which included reports on three different types of studies related to pupil learning. The resource bank was used minimally by teachers during the 10th Cycle, and it was eventually dropped from the 12th Cycle proposal.

Documentation and Evaluation in Cycle 10

The primary purpose of the documentation system was to track aspects of teacher behavior during the year and analyze them to determine whether changes were occurring which might be related systematically to training activities. Data were gathered at twelve points during the year 1976-77 for each of twelve teachers. Three observation systems were used: The Teacher Innovator System (TIS), the Coping Analysis Schedule for Educational Settings (CASES), and the Spaulding Teacher Activity Recording Schedule (STARS). These three observation systems yield two types of output. Data obtained using TIS characterize dimensions of teaching such as "information processing," "directive procedures," "implementation communications," and "corrective feedback." The CASES/STARS system provides information on the dominant instructional and management "styles" the teachers use in specific settings.

The TIS system is presented in Table 3 with data from the project school ranked by frequency of occurrence over all observations. Altogether about 10,000 communications were recorded, or about 100 per teacher per observation.

Level 1 information processing communications accounted for 57% of all the communications recorded. Level 1 questions and statements elicit or state factual information. The question in Level 1 does not require the learner to develop concepts, state them, make inferences or hypothesize.

Table 3
Categories Ranked by Frequency Over All Observation

Rank	Category Name	Frequency	Percent
1	level-1 information processing	5705	57.0
2	procedures - directive	1308	13.1
3	instructional implementation	1191	11.9
4	positive feedback	467	4.7
5	corrective feedback	356	3.6
6	level 2 - information processing	236	2.4
7	repeating	226	2.3
8	digression	123	1.2
9	non-instructional implementation	114	1.1
10	content - directive	108	1.1
11	neutral feedback	95	.95
12	negative feedback	31	.31
13	content - negative	18	.18
14	goals and standards - directive	14	.14
15	procedures - negative	6	.06
16	open - information processing	3	.03
17	opinion - information processing	3	.03
18	level 3 - information processing	0	.00
19	goals & standards - negotiated	0	.00
	TOTAL	10,003	

Level 1 information processing moves are those which characterize the "recitation style" of teaching in which the teacher asks lower order questions and questions to elicit knowledge of facts and the student responds in kind.

Speaking of the school as a whole, the sheer magnitude of Level 1 information processing moves is evidence that the recitation method continued to be the most dominant mode at the project school during Cycle 10.

Level 2 information processing moves occupied the sixth rank and represented about 1 in 30 of all information processing communications. Level 2 communications state a concept or elicit a statement of a concept from a student. They are characteristic of inductive and conceptual models of teaching. In studies of teachers carrying out inductive models of teaching it has been observed that about 200 level 2 communications occur during a single hour in which an inductive information processing model of teaching is used.

Level 3 information processing communications occupied the 18th rank with a zero frequency. Level 3 communications state or elicit hypotheses or theories or deal with causal explanations. The total absence of such communications indicates that no information processing models of teaching were generalized to the regular instructional program during the

periods of observation. In addition, open information processing communications and solicitations or statement of opinion occupied the 16th and 17th rank, with a frequency of only three each.

These two categories, together with Level 3 information processing, are characteristic of classrooms in which there is open discussion of important issues and in which concept building activities are dominant.

It became clear that the information processing communications in these classrooms were directed toward the mastery of specific facts rather than the development of concepts, speculation about issues or the development, and the expressions of attitudes and feelings. The lack of opinion oriented information processing communications was also an indication that the content of the classrooms was relatively neutral and that there was virtually no expression of personal opinion during the periods of observation.

The second most common category was "directive procedures." These are communications in which the teacher or student determines procedures, that is the determination of content to be covered and the means with which it is to be covered by using direct statements and questions. Directed procedures when not balanced by indirect procedures, are characteristic of authoritarian classrooms. Communications negotiating content ranked 13th with a frequency of only 18 and communications negotiating procedures ranked 15th with a frequency of only 6.

Instructional implementation was the third most frequent category with a total of 1191 or about 12% of the total number of communications. Implementation communications are those which arrange the events and players during a classroom activity. Calling on students, indicating specific details of activities to be done next, are examples of instructional implementation communications. Together, directive procedures and instructional implementation accounted for almost 25% of all the communication. Combined, Level 1 information processing, directive procedures and implementation communications accounted for over 80% of all the moves which occurred in the transactions during the period of observation. Thus, we found a picture of quite directive and straightforward teaching directed at the mastery of facts.

Positive and corrective feedback were the fourth and fifth ranking categories respectively. Positive feedback is a reinforcement of a behavior and corrective feedback is one which accepts the student's communication but provides information about how it could be improved.

The occurrence of such a high proportion of corrective feedback indicated a task-oriented classroom in which mastery was highly valued.

The occurrence of neutral feedback was 11th with a total frequency of 95 for the more than 1,000 observations, and negative feedback was observed only 31 times. The overall atmosphere then is one which is positive, yet task-oriented, with neutral and corrective feedback together occurring about as often as positive feedback alone.

In summary, it appeared that the inservice instruction which the teachers received during the 10th Cycle year did not have a generalized impact, at least in these observations, which would have illustrated an implementation of either of CASES management prescriptions or Models of Teaching.

The Cycle 12 Project Research Bases

As negotiated and funded, the 12th Cycle project had three research-based components. These were 1) Models of Teaching, 2) teacher self-analysis, and 3) pupil learning styles. The feedback component of Cycle 10 was redeveloped to incorporate "feedback" as a basic training process in the three remaining research-based training components. Self-analysis was restructured to make primary use of the STARS data system.

An "exceptional child component" was added as a fourth thrust of the project as a result of the grant negotiation process. The research base for this component was the CASES-based, classroom diagnostic/prescriptive system (Spaulding, 1978).

During the first year of Cycle 12, experimentation was conducted with several different training formats. Actual practice in the classroom of those strategies learned in training was emphasized. For example, in a one month period, 42 different classroom trials were made of the concept attainment model. The procedures for follow-up and feedback were also more sophisticated than in the previous two years.

The program for interns was organized to provide competencies in Models of Teaching and their allied skills, classroom management techniques, self-analysis as a teacher, community organization, multicultural education, and education of exceptional children. The methods used to train the interns in classroom management, curriculum, and instruction were similar to those employed with inservice teachers and, whenever possible, the training activities involved both groups. After an introduction to Models of Teaching, given during the fall semester, the interns participated in training in two information processing models, concept attain-

ment and inquiry training, and a personal model (synectics). Included in this training was instruction in theory, peer teaching, and micro-teaching.

Unique Successes and Innovative Features from the Research Bases

The work of the 12th Cycle was an extension of the work completed during the 10th Cycle. Among the unique successes and innovative features were the following:

- the acceptance by teachers of presence of the CASES observers in their classes and their willingness to make use of the suggestions provided in feedback sessions in reorganizing their classes to assist specific pupils to develop improved social skills and make greater academic gains;
- the willingness of the teaching staff of the project school to receive instruction in three models of teaching (concept attainment, synectics, and relaxation/desensitization), engage in peer-teaching of the models, and try the models out in a series of practice lessons in their regular classrooms (and to be observed by classroom observers using the Teacher Innovator System and the Spaulding Teacher Activity Recording System);
- creation of an effective School Appraisal Team (SAT) which functions to bridge the gaps between the regular classroom teachers, the special class teachers, the district specialists (speech therapist, school psychologist, etc.), the school principal, and others concerned with the development of "individualized educational plans" for mainstreamed exceptional children;
- the introduction of diagnostic/prescriptive, criterion-referenced mathematics programming in the upper grades and increased interest in continued curricular development; and
- the creation of an efficient, micro-computer-assisted feedback system utilizing classroom teacher/pupil transactional data to provide teachers with timely information on the effects of curricular adjustments and specific management techniques on the classroom behavior of specific pupils.

Elements of these project features were demonstrated locally and at national conferences such as the AACTE in Chicago and AERA in Toronto. Another avenue of dissemination was the California Staff Development Network.

Outcomes of the Four Year Effort

At this writing, the final assessment of the cumulative impact of Cycles 10 and 12 is still underway. Under subcontract, Bruce Joyce is making a retrospective, ethnographic inquiry in which all principal project personnel, a 50% sample of involved district personnel, and a 5% to 10% sample of parents and other community persons are being interviewed. Data on student achievement, on changes in classroom management and instruction (as measured by CASES and STARS), and on changes in the social learning behavior of pupils (as measured by CASES) will be available at the conclusion of the project in June of this year.

Findings Regarding Classroom Management

1. Preliminary data suggest that the inservice teachers improved their management skills as a consequence of training in the use of CASES-based treatments. See Descriptors pages 77 to 83. During the academic year 1977-78, all teachers were successful in reducing aggressive, annoying, bothering, and disturbing (Style A) behaviors to zero or near zero in teacher-directed settings. The same result was found in program-directed settings with the exception of grade 5, where a small degree of acting-out behavior still remained at the end of the year.

2. Changes in resistant, delaying passive aggressive (style B) behaviors in teacher-directed settings were found to parallel the changes in acting-out behavior in the same settings. When data on resistance, delay, passive-aggressive, and peer-oriented off-task behavior were gathered in non -teacher directed settings a mixed pattern emerged. Boys became more resistant and passive aggressive in the first and second grades and less so in the third grades. In contrast, girls resisted less in the first grades and more so in the third grades. Among the fourth grades, there was no Style B behavior evidenced at the end of the year and very little evidenced in the Fall.

3. Boys were most resistant in grade 5 and although their resistance declined somewhat during the year, they were still showing a substantial amount of Style B behavior at the end of the year.

4. The results for withdrawn (Style C) behavior were very dramatic. By the Spring of the year there was very little withdrawn behavior in evidence in either teacher-directed or non-teacher-directed settings.

5. The findings for distractible (style D) behavior were equally

dramatic. There was universal success among all grades in the reduction of these behaviors.

6. The findings for attentive, compliant (Style E) behavior during teacher-directed settings were mixed, with the kindergarten pupils and third grade students showing discrepant patterns. Students in grades 1, 2, 4, 5 and special education became dramatically more attentive during instruction. In contrast, the kindergarteners and third graders either declined in Style E, or as in the case of the third grade girls, remained at a low level of attentiveness throughout the year.

7. Style E behavior is less desirable during seatwork and the CASES-based treatments are expected to assist students to demonstrate self-directed (Style G) or socially integrative task-oriented (Style F) behavior during non -teacher directed settings. This pattern was found for grades 1, 4, 5, and special education. The first graders showed gains in Style F, the fourth graders showed gains in Style G, the fifth graders in both Styles F and G, and the special education pupils gained primarily in Style G.

8. All classes showed a high degree of passive conforming (Style H) behavior during teacher-directed activities in the Fall. Only the boys in special education demonstrated a significant drop over the year. Passive conformity also dropped dramatically in the fourth grades during non-teacher-directed settings.

Summary of Findings for Classroom Behavior of Pupils

The CASES-based training given to the teachers over the years 1975-76, 1976-77, and 1977-78 appeared to assist all the teachers to improve their classroom management skills. All teachers were successful in reducing acting-out (Style A), resistant (Style B), withdrawn (Style C), and distractible (Style D) behaviors. They were also generally successful in strengthening attentive behavior during instruction and self-directed, task-oriented behavior during seatwork. The pattern of instruction referred to earlier (recitation style with the teacher directing the pace and flow of the proceedings) resulted in a predominance of passive, submissive behavior (Style H) instead of a more active, creative (Style F and/or G) pattern.

Findings Regarding Self-Analysis Using STARS.

Self-analysis using the STARS feedback system was selected by only one teacher. The Director style was predominant in both teacher-directed

and non-teacher-directed settings. The next strongest style, which was not visible on the average, was Rote Process.

The training program for this teacher is currently underway and post-treatment data will be taken in May. At this point, no preliminary results are available to report.

The baseline results for three of the interns also show the Director as the predominant style. The fourth intern is dramatically different in her teaching style. While instructing she uses the Expository and Narrative (story-telling) styles and during seatwork uses the Expository teaching style and five specific CASES-based management styles designed to be used with 5 different styles of learners. As far as the objectives of the CASES and STARS training systems are concerned, this one intern has, alone, achieved the management skills intended in the research adaptation process.

Descriptions of STARS & CASES Teaching Styles

STARS

Key # Name & Description

1. The Story Teller. This teaching pattern consists of 5 transactions. Children (students) listen attentively while the teacher reads, narrates, explains and tells or while he/she motivates them to pay attention and share or contribute. Three other transactions include the sharing or contributing by children followed by teacher telling, motivation, or observing and listening.

   In this teaching style the teacher tells or reads and the students listen attentively or contribute. The teacher also motivates the students to contribute and he/she listens to the contributions of the students. The pattern does not include teaching transactions in which students are not attentive or contributing or sharing appropriately. A typical setting is story time in a kindergarten or preschool. It would also characterize reading to older students who are contributing or sharing appropriately.

2. The Lecturer. In this teaching pattern the instructor tells, explains, describes, illustrates, etc., while students either attend minimally or engage in various inappropriate activities. They may fool around, read to themselves, watch other students, talk to or interact with each other (off-task), daydream, or gaze around at movements and noises in the room. The instructor reminds those who are not listening attentively to pay attention. He/she may also ask the students to recall or apply abstract concepts that he/she has been describing or explaining.

3. The Examiner. The Examiner focuses student attention on content areas and asks for recall or application of specific information. Both high level and low level cognitive operations are requested. The students submit passively to the

requests for recall and application and contribute or recite as requested. The teacher praises or otherwise rewards those students who respond as directed.

4. The Entertainer. In this teaching pattern the teacher frequently digresses from the subject matter while the students pay close attention, frequently contributing digressions of their own or interacting integratively with the teacher or with each other. The teacher also expresses his or her own point of view, opinions, or values, along with the digressions from the academic subject-matter at hand.

5. The Controller. The Controller uses negative control techniques, such as criticism and threat of punishment, to keep students on-task. That is, students who are appropriately engaged are ignored, or at least not reinforced for being on-task. Positive control techniques (such as praise or other rewards for appropriate behavior) are not a characteristic of this management style. When students are observed to be off-task, inattentive, distracted, drowsy, or wandering about they are reprimanded and redirected with negative affect (scored as "—"rather than "R" because of the affective charge given the redirection).

6. The Counselor. The Counselor responds to the help-seeking behaviors of students by listening to their requests, setting goals and procedures, giving reinforcers, redirecting behavior, reminding them of previously set procedures or standards, motivating them to follow procedures or guidelines, and/or eliciting their opinions, feelings, attitudes, or values.

7. The Pseudo-Peer. Teachers who show the Pseudo-Peer pattern attend to and reinforce the integrative off-task and disruptive behavior of students. They also respond to such behavior by digressing and expressing their personal opinions, values, and attitudes.

8. The Discovery Teacher. The Discovery Teacher focuses the attention of students on specific items or arrays of concrete material or representational data and elicits categorization, grouping, or sorting activities. Recall or application of specific items or data relevant to the inductive process (as perceived by the instructor) may also be requested. The instructor may frequently motivate the students to pay attention and structure their responses by describing goals, objectives, steps, materials, etc., to facilitate the induction of concepts.

9. The Socratic Teacher. Instructors using Socratic techniques focus on "givens" and request deduction of logical implications to be drawn from designated factual information and/or premises. The "givens" may be concrete or abstract. The Socratic teaching style includes requests for recall of specific premises, information, or principles and the use of such specifics in the process of deduction and in generalizing beyond the premises or specific information given. Hypothesis generation from observed phenomena (or

reports of phenomena) and testing of such hypotheses are characteristic of this pattern.

10. The Manager. This is a management style rather than an instructional or counseling style. It is based on principles of behavior modification and contains the basic, common elements of the 5 cases treatment schedules (see CASES patterns 21 through 25, inclusively). The Effective Manager uses an appropriate time-out procedure when students are physically or verbally abusive, or when they are seriously disruptive of normal classroom processes (CASES categories 21 and 22). They also are aware of a variety of manipulative and off-task behaviors which they choose to ignore, while awaiting on-task and other appropriate behaviors to reinforce. They respond to the appropriate help -seeking by giving structure (citing procedures, steps, objectives, materials to use, etc.) and listen to (or observe) attentively student-initiated on-task or help -seeking behavior.

11. The Expository Teacher. This instructional style is characterized by student attentiveness and on-task integrative behavior. Students listen attentively, contribute appropriately, or engage integratively in discourse with the teacher or other students regarding the topic under discussion. The teacher tells, motivates, focuses attention, and asks students to apply the information given or produced. The Effective Expository Teacher may describe and explain concepts at a low cognitive level (e.g. memory of facts or use of simple rules regarding one-to-one correspondence) or at a higher level (e.g. application of principles or rules regarding relationships between two or more variables which co-vary).

12. Rote Process. Rote Process is the label for a teaching style in which bits of information are given in a repetitious manner to be memorized by the student. The process is fixed and mechanical, not requiring thought. Spelling or number fact drills are common examples of this pattern or style of instruction. Students are attentive to the directions and cues given and respond submissively and appropriately when asked to recite or respond in writing. The teacher may also request the students to make use of the information given in practice exercises which require memory (of patterned drills and discrimination of appropriate responses).

13. The Responsive Explainer. This is an instructional style which is characterized by student initiated help-seeking and conformity to teacher direction. The Responsive Explainer responds to requests for assistance by giving increased structure (citing procedures, steps, objectives, materials to use, etc.); by explaining, describing, telling characteristics or attributes of concepts or principles; by motivating the students to use their own problem-solving skills; or by focusing student attention on selected dimensions or facets of the task at hand. The Responsive Explainer may also, at times, give structure, explain, motivate, or focus the attention of students who are submissively responding to directions (without waiting for specific requests for assistance).

14. The Supportive Guide. The Supportive Guide combines reinforcement for self-directed on-task behavior with support and structure for help-seeking. Students who request assistance (either appropriately or inappropriately) are given structure (objectives, procedures, steps to take, materials to use, etc.) or are reminded of structure given previously. They are also motivated to apply their energies to the task. Appropriate help-seeking is also reinforced by verbal rewards (praise) and by assistance in the form of encouragements, teacher statements focusing on relevant details of the task, and requests for recall of specific relevant bits of information needed to solve the problem or complete the task. In contrast to the Responsive Explainer, the Supportive Guide does not tell, explain, or describe the answers or solutions to the problem at hand.

15. The Egocentric Instructor. With the exception of the use of aversive techniques and frequent citing of rules and standards for classroom behavior as a means of controlling pupil aggression and manipulative behavior in the classroom, this style is characterized by the teacher's digression from the subject matter at hand. The Egocentric Instructor not only voluntarily strays off-task, but is drawn into digression by student initiated off-task comments and digression. The Egocentric Instructor identifies the subject matter to be investigated or discussed, but is easily diverted by topics of issues or personal interest.

16. Transductive. The Transductive Teaching Style is composed of three teacher behaviors focusing on specific items or arrays of concrete material or representational data; asking for analogies or metaphors; and asking for applications of such analogies and metaphors in novel situations or settings. These teacher behaviors are responsive to the task-appropriate behaviors of students. Thus, a transductive teaching pattern includes focusing the attention of task-oriented students on relevant items or arrays of data, soliciting analogical or metaphorical responses from them, and asking them to make use of such analogies and metaphors in problem-solving activities.

17. The Structuring Supervisor. The Structuring Supervisor responds, primarily, to students who are off-task. When they are on-task he/she remains observant but non-transactional. When students are observed to be off-task, he/she often gives structure (cites objectives, procedures, steps to take, materials to use, places to work, etc.). He/she does not remind them of rules and standards of behavior, but relies on the giving of structure and specific questioning to keep the students on-task. When questioning is used, the Structuring Supervisor asks students to recall relevant facts or to use specific bits of information as they attempt to complete the assigned task.

    This teaching style is likely to be found dominant when data are gathered in an individualized or program-directed setting on just one student, as in a case study. As the teacher responds to other students (who may have been off-task) the subject of the case study may be on-task (or assumed by the teacher to be on-task) and the teacher will be observed to be non-transactional with the subject.

18. Field Sensitive Teaching Style. The basis for the current characterization of "field sensitive" teaching (and its companion style "field independent" to be described next in Key #19) is to be found in *New Approaches to Bilingual, Bicultural Education* by Castenada and Ramirez (1975). The "field sensitive" teacher encourages and supports integrative and cooperative social interaction. He/she responds supportively to requests for assistance even if expressed inappropriately. The Field Sensitive Teacher gently restructures (reminds, cautions, guides) students who are integratively off-task (playfully interacting) or involved in inappropriate self-directed activity. Negative or aversive control techniques are characteristically not used by the Field Sensitive Teacher.

    Instruction is expository and direct, supported by frequent motivational comments, learning cues, and focusing techniques. Students are frequently asked to recall and apply facts and concepts. The Field Sensitive Teacher also encourages the expression of values and personal opinions. He/she supports students who express their feelings and interests and responds integratively, by sharing his/her own feelings and points of view.

    In summary, the Field Sensitive Teacher:

    - displays physical and verbal expressions of approval
    - uses personalized rewards
    - expresses confidence in child's ability to succeed
    - responds to children who are having difficulty
    - guides and explains in step-by-step fashion
    - uses modeling as an instructional technique
    - encourages cooperative learning and group support
    - relates learning tasks to personal lives of students
    - models problem-solving strategies in daily lessons
    - draws generalizations from the data presented
    - humanizes the content of instruction and adapts it to the lives of the students in the class

19. Field Independent Teaching Style. As currently defined the "field independent" teaching style is based on distinctions made by Castenada and Ramirez in their book *New Approaches to Bilingual, Bicultural Education* (1975).

    The "field independent" teacher reinforces self-directed, task-oriented, independent behavior in students. Social interaction is not encouraged and students who initiate interaction are redirected toward independent activity. Instruction is focused upon self-discovery of concepts, principles, and generalizations through use of inductive, deductive, and analogical (transductive) techniques. The "field independent" teacher checks on skill and knowledge acquisition by testing for recall of facts and concepts and the application of principles and generalizations in transfer of learning tasks.

    In summary, the Field Independent Teacher:

    - is formal in relationship with students

- maintains a direct, authoritative instructional manner
- centers attention on the cognitive task or instructional objectives at hand
- encourages independent student achievement
- encourages competition between students
- teaches problem-solving strategies and analytical skills
- emphasizes abstract principles and generalizations as the outcome of learning
- emphasizes measurement and quantification in processing information
- uses inductive, deductive, and transductive discovery techniques
- discourages group-process techniques as modes of learning in the classroom

20. The Director. The Director sets limits and gives directions to students and they comply with his/her instructions. He/she also reminds students of the rules, expectations, limits, and procedures set down previously as guidelines or standards for behavior (in a positive, gentle way). Students who ask for assistance or guidance are given appropriate rules, guidelines, or specific procedures to follow. When students are off-task the Director may gently redirect them by suggesting alternative activities or by making changes in their assignments. The teacher may physically guide or physically redirect them in a gentle way. Negative affect is characteristically not a feature of this management style.

CASES

Key # Name & Description

21. Style A Treatment. The CASES treatment schedule designed for Style A pupils (dominative, actively aggressive, annoying, bothering, controlling, manipulative) includes prescriptions regarding curriculum as well as behavior management. The STARS teaching pattern key for the Style A Treatment focuses on the management dimensions of the schedule. The teacher who uses the Style A Treatment schedule employs a suitable "time-out" procedure in response to dominative, annoying, bothering, aggressive, or manipulative behaviors of pupils. Resistance, off-task behaviors, inappropriate help-seeking, daydreaming, physical and visual wandering behaviors are ignored. Teachers using this management style attend to and reinforce leadership and task-appropriate behavior and provide task guidelines and logistical support to students seeking assistance or following directions appropriately. This management style also includes motivational statements, questions regarding the cognitive status of the learners, and inquiries about their attitudes, opinions, and beliefs (when they are on-task).

22. Style B Treatment. The treatment for Style B (resistant, delaying, off-task, peer-oriented) students has many elements in common with the Style A treatment schedule. The primary difference lies in the absence of emphasis on conformity and submissiveness to authority. Such submissiveness is ignored rather than required and/or reinforced. In addition, the management pattern for Style B omits motivational comments to those students who exhibit leadership or adult attentive behaviors since such students tend to increase resistance and delay in conforming to instructions.

23. Style C Treatment. The treatment schedule for Style C (passive, withdrawn, dreamy) students may also be readily distinguished by comparing it with the treatment for Style A pupils. The treatment for Style C omits "time-out" as a technique to control behavior. Instead, all inappropriate behaviors are weakened by ignoring them when they occur and by reinforcing all appropriate behaviors. Structure (guidelines, steps, procedures, objectives, task-analyses, and designation of models) is increased in response to all pupil requests, whether appropriately phrased or sequenced or not. Since these students (Style C) tend to be overly submissive and docile they are not rewarded for such behavior; instead, they are given structure and motivated to proceed more independently.

24. Style D Treatment. Students who display Style D are peer dependent, distractible, and frequently off-task in response to the activities of peers. The treatment schedule calls for the same teacher responses characteristic of the Style A treatment, with the addition of structuring responses (verbalizing of guidelines, steps, procedures, objectives, etc.) paired with reinforcements in response to appropriate student behavior. When Style D students are distracted (watching peers) the treatment calls for eliciting their attitudes, opinions, or beliefs (to be followed by increases in structure and reinforcers for on-task behavior).

25. Style E Treatment. Style E (attentive, adult-oriented, compliant) students are found to respond to a treatment very similar to that designated for Style C pupils. The primary difference is in the degree of structure provided. Rather than respond to adult dependence and inappropriate requests for assistance by giving guidelines, procedures, steps, etc., the treatment calls for the ignoring of inappropriate help-seeking. Appropriate requests for assistance are rewarded, but logistical guidelines are not given. Instead, the student is motivated to work out the problem using his/her own resources. The teacher may also respond to any task-appropriate behavior by motivating the student to discover the next steps in the task at hand on his/her own or to examine the cognitive processes he/she is experiencing to identify patterns, principles, or generalizations.

    The treatment for Style E behavior leads to an increase in Style F (assertive, socially integrative, task-oriented) or Style G (independent, self-motivated, task-oriented) behavior as appropriate to the setting and subject matter. Thus, the same treatment is used for all three styles.

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5 The Application of a Diagnostic/Prescriptive Model to Inservice Training Utilizing Research Findings

John Bullock

The thrust of the University of South Florida/Hillsborough County Public School System Teacher Corps project was the application of research findings on diagnostic and prescriptive instruction in developing and demonstrating an approach which facilitated the learning of mathematics and reading by low income children. These research findings were utilized to develop a training program that was implemented cooperatively by the university, school system and community.

This thrust was the result of a collaborative planning approach to the solving of locally identified problems in the State of Florida and particularly in the local community. For research to be an effective tool in educational improvement it must ultimately make an impact on teachers in the classroom. This effort was a deliberate attempt to link research and researchers with implementors.

Statement of Need

The State of Florida exhibited a high level of interest in the improvement of teacher skills in general, and specifically in the teaching of mathematics and reading. The Florida State Legislature committed the state to a program of the improvement of teacher skills through its 1974 legislation creating a network of Teacher Centers. This legislation stressed cooperative efforts by the state university system and local school districts. Emphasis on the improvement of instruction in reading and mathematics

was made the number one goal by the State Commissioner of Education. The Educational Accountability Act passed by the legislature requires that students take a series of tests to determine if they are meeting minimal educational standards in reading, writing, and mathematics. Each school district has the primary responsibility for solving their own problems associated with these skills.

The project occurred in a metropolitan area containing approximately 1.5 million people, nearly 20% of Florida's total population of 8.5 million. Hillsborough County, Florida, has a population of 580,000 and contains Tampa, Florida's third largest city with 289,000 inhabitants.

The local school system which serves the entire county is the twenty-second largest school system in the nation and contains 132 schools which house 109,000 students. Approximately 27% of these students are classified as economically disadvantaged using ESEA Title I criteria. Included in the student population are 21,506 blacks, 7,479 with Spanish surnames, 381 American Indians and 362 Orientals.

Hillsborough County's assessment data indicated that approximately 12,000 students in grades 1-7 scored at the first or second stanine in mathematics and reading on the national norms of tests. This caused the school system to place a high priority on improving instruction in these skills. This decision led to the cooperative thrust at attempting to solve these problems.

The target school selected for this project was Mitchell Elementary School. Mitchell School has grades K-6 and is located in Southwest Tampa. The building was constructed in 1915 and serves 675 students. The staff consists of one principal, 33 teachers, five aides, one secretary, one clerk and three custodians.

The Hillsborough County School System operates under a desegregation plan which provides for faculty and student racial balance in all schools. This has resulted in individual school populations which are heterogeneous in terms of their racial, ethnic, and economic composition.

Because of the plan of desegregation in the school system, Mitchell School served two separate geographic areas. One area consisted of the local neighborhood and the other was a satellite area from which approximately 110 students were bussed.

A unique indepth demographic description of the Mitchell School community was conducted at the onset of the project. This study was made using the 1970 census summary computer tapes and the computer tapes from the 1974-75 Profile of Change compiled by R.L. Polk and Co. Specific knowledge of the communities within which the students and their

families resided was felt to be essential for an understanding of their educational needs.

It was clear that between 1970 and 1975 that the Mitchell School community underwent a state of decline. It is interesting that while the school community was undergoing decline, a demographic characteristic, the percentage of female heads of households with minors also declined. Usually this characteristic is negatively correlated with urban decay. This type of inconsistency between what should have been expected and what actually occurred provided the kind of insight into the community that would normally not have been available.

Research Base

The thrust of the project applied the research findings on diagnostic and prescriptive instruction in developing and demonstrating an approach which facilitated the learning of mathematics and reading by low income children. These research findings were utilized in developing a training program for teachers which was implemented cooperatively by the community, school system, and university. It was agreed by representatives of the three constituencies just mentioned that a staff development program focusing on diagnostic and prescriptive instruction would be the most effective strategy in bringing about desired project objectives.

The problem of low achievement in reading and mathematics is a relatively long-standing one and attempts to alleviate it have often shown less than the desired degree of success. These attempts have usually focused on formal classes in teacher training institutions or on the development of "failure proof" instructional materials. A proliferation of courses devoted to the teaching of mathematics and reading have been generated by universities across the country and the education marketplace has been flooded with "new" materials for mathematics and reading instruction. However, inadequacies in instruction in these basic skills continue to persist.

Several hypotheses for the failure of past attempts have been advanced. The courses which were developed were too technique-oriented, too removed from classroom realities, and did not strike a balance between the nature of the content to be learned and the nature of learners and their environments. The materials were often inadequately field-tested and were developed with many differing philosophies and often inadequately specified criteria. The result has been that instructional personnel have

been unable to select or devise techniques and materials appropriate to specific children, and appropriate to the particular task to be learned, and appropriate to the specific environment selected for use.

In view of the criticisms and ineffectiveness of past attempts to improve instruction in mathematics and reading, it became the position of the staff that any future attempt must use an approach which capitalized on the special resources and characteristics of the university, school system and communities from which the students came. Thus, any project aimed at the improvement of instruction by utilizing research findings in teacher training should include: (1) a planning component which represents a coalition of school, community, and university resources; (2) experiences aimed at developing an understanding of and an appreciation for the cultural diversity of the students; (3) emphasis on both knowledge and its application to the classroom setting; (4) the selection of a diagnostic/prescriptive model which provides for the integration of content, instructional technology, and learner-environmental characteristics; (5) a carefully planned program for the demonstration-dissemination of the diagnostic/prescriptive model and the teacher training procedures used to implement it.

The literature on diagnosis and prescription in educational settings contains many critical reviews of current theoretical models and their corresponding conceptualizations and methodologies. The controversy encompasses many definitions, models, and theoretical orientations.

The Model

The diagnostic/prescriptive model utilized in the strategy for this project, the task-integration model (Uprichard, Baker, Dinkel, & Archer, 1975), was a synthesis of an ability training model and a task analysis model. That is, equal emphasis was placed on the learner and the subject matter.

This model was selected early in the project planning stage by the university, school system and community. A strong commitment for the use of a diagnostic/prescriptive program led to the selection of the above mentioned model. The selection of this model was influenced by the availability of the designer of the model, Edward Uprichard, who served as the Mathematics Coordinator during the project and directed the adaptation process.

John Bullock

The Model Delivery System

The inservice strategy utilized within this project was divided into two stages, development and demonstration, with the major emphasis in terms of time and use of resources being placed upon the first stage. The focus of stage one was on the development and validation of teacher competencies in diagnosis and prescriptive instruction. The development of stage one had two levels, staff development training and field-testing of training.

In view of the weaknesses in past attempts to improve instruction in reading and mathematics, it appeared that future attempts at teacher training should use an approach which appropriately integrates: (1) content; (2) instructional technology (media and development of materials); and (3) cultural and behavioral variables. The staff development program used for this project had three sequential components: Component I, Basic Knowledge and/or Skills; Component II, Diagnostic/Prescriptive Model; and Component III, Clinical Practice. Figure 5 shows the sequence and relationships of the components. It should be noted that it was Component II which provided the structure for the integration of content and instructional technology, while Component III provided the structure for the unique integration function of content and instructional technology with cultural variables and the management of behavior.

Component I: Basic Knowledge

The objective of the first component was for teachers to acquire basic knowledge and skills necessary for the implementation of the task-process integration model. The five areas comprising this component were: academic concentration of mathematics and reading, instructional technology, multicultural education, and management of behavior.

The academic concentration emphasized content and methodology. Content included the study of the structural properties, the acquisition of necessary skills and the hierarchical relationships within the academic concentration. Methodology referred to specific strategies employed to facilitate the learning of the properties (structure and skills) of the academic concentration.

The instructional technology area was divided into two parts: instructional programming and media production. Instructional programming was concerned with defining terminal behaviors, devising criterion tests, defining initial behaviors, behavioral analysis and sequencing, comparison

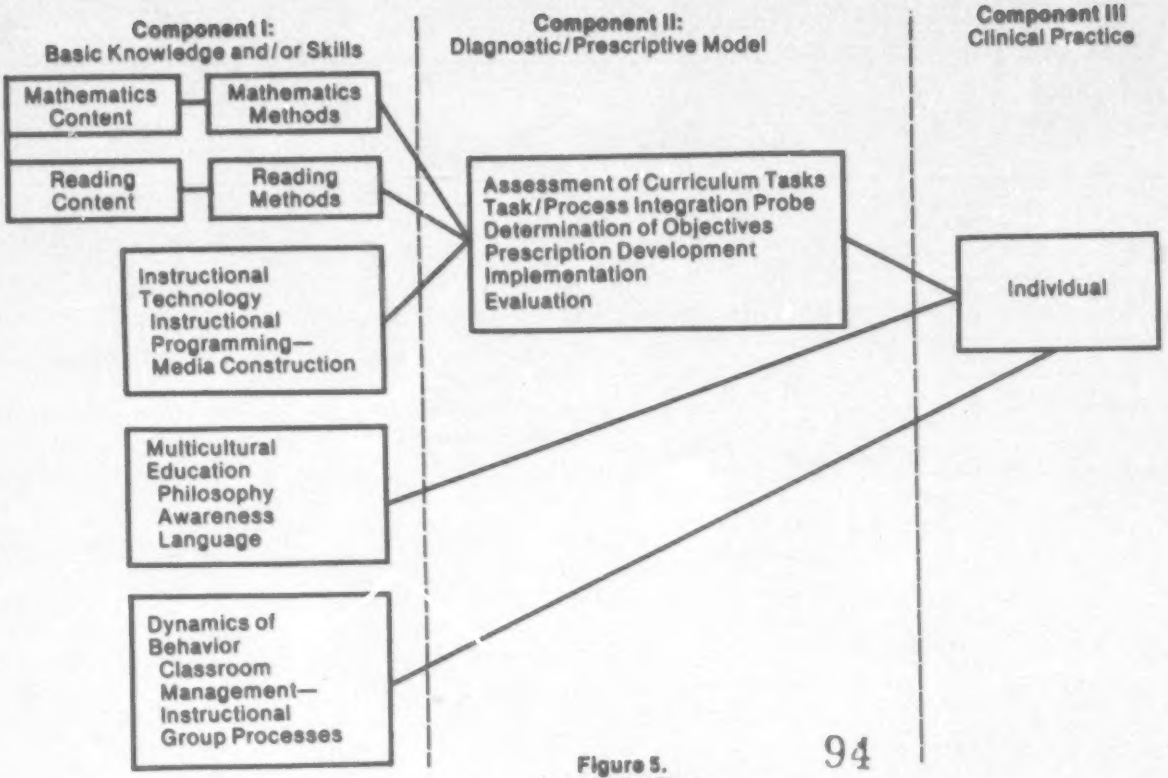

Figure 5.
Sequential Flow
Of Staff Development Program

of various programming techniques, etc. Media production required the acquisition of such skills as the production of still photography, producing filmstrips, designing overhead projector presentations, producing audio tapes, etc.

Component II: Diagnostic/Prescriptive Model

The objective in Component II was for teachers to gain a working knowledge of a model which integrates the reading, mathematics, and instructional technology areas studied in Component I. An overview of the task-process integration model used for diagnosis and prescription in reading and mathematics is contained in Figure 6. This model is a synthesis of the ability training and task analysis models previously mentioned. The model assumes diagnosis to be the assessment of the state of the learner with respect to specified criteria and prescription to be the systematic manipulation of those criteria to accomplish desired learnings. The model stipulates a process involving six phases.

In Phase I, Assessment of Curriculum Tasks, the objective is to identify problem tasks the learner is encountering. That is, in this phase a symptomatic diagnosis is performed to determine the mathematics concepts and reading skills which a child has or does not have. The assessment is begun by administering a standardized test such as the Stanford Dignostic Arithmetic and Reading Test. A more thorough assessment is continued with teacher-made tests which are developed according to the task analysis model. Standardized tests identify general problem areas and teacher-made tests identify the specific problem tasks. Following the assessment phase is the Task/Process Integration Probe (Phase II). Here the objective is to define operationally a child's learning style with respect to a specified set of variables. Probes focusing on both task and process variables concurrently represent a synthesis of the two models. A criticism of the ability training model is that underlying processes examined were difficult to relate to classroom tasks. In Phase II of the present model process variables are examined using classroom tasks. Phase III, Determination of Objectives, and Phase IV, Prescription Development, relate directly to the data collected in Phases I and II. In Phase III objectives are formally stated, and in Phase IV prescriptions are developed by systematically manipulating specified variables such as method, stimuli conditions, and/or response modes. Once objectives are stated and prescriptions for those objectives developed, one moves into Phase V, Implementation, and

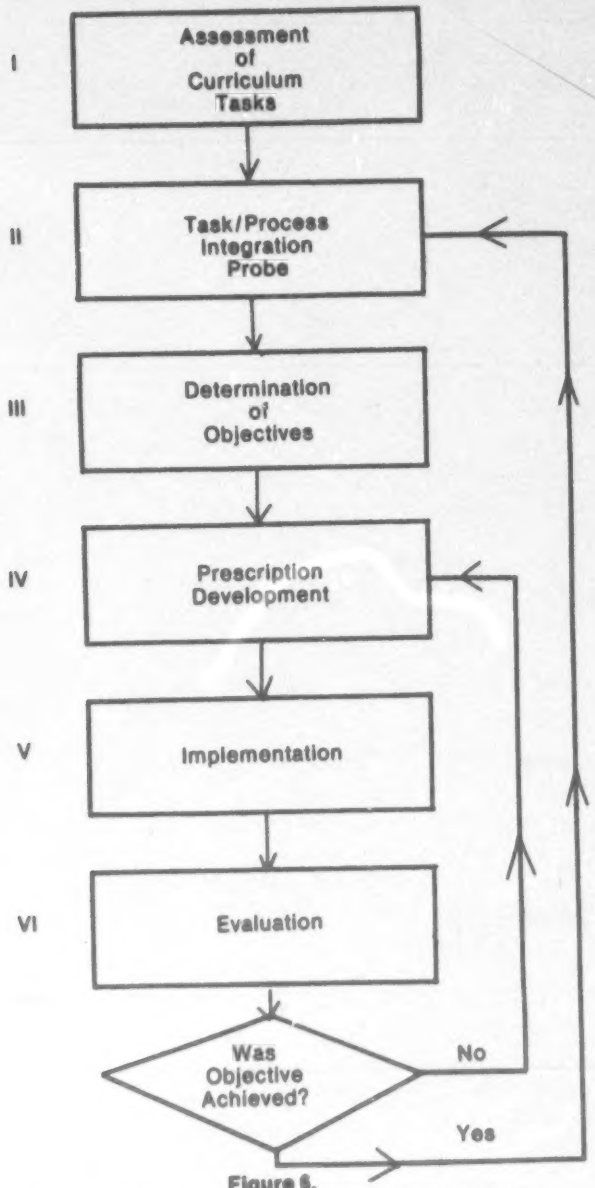

Figure 6.
Planning Diagnostic and Prescriptive Instruction

Phase VI, Evaluation. When it is determined in Phase VI that an objective has been achieved by the learner, one loops back to Phase III for another objective. If the objective is not achieved by the learner, the loop is to Phase IV to develop an alternative prescription.

As previously indicated, the objective of Phase I is to identify specific areas of difficulty that the learner is encountering in mathematics and reading. The basic organization tool that the teacher uses to achieve this objective is a taxonomy. The mathematics and reading taxonomies used by the project have two purposes: (1) the general evaluation of the assessment instrument or instruments to be used, and (2) the development of a profile depicting results for an individual learner. Both of these purposes are achieved through taxonomic classification of test items.

Component III: Clinical Practice

The major purpose of the third component of clinical practice was to aide teachers in synthesizing the information gained in the previous two components and to bring this information to bear on planning and implementing instructional programs. In this component individual children were the focus for the application of a rather complex diagnostic and prescriptive process.

The diagnostic/prescriptive plan described in Component II included content and instructional technology variables. In this third component the process included the addition of multicultural and behavioral-management variables. If one thinks of the complexity of a diagnostic/prescriptive process as being operationally defined in terms of the number of classes of variables considered, then the diagnostic/prescriptive process to be used in Component III was more complex than that in Component II.

Field-Testing of Training

The purpose of this level of the development stage was twofold. First, it provided information on the success of the training components described above. Second, it provided an opportunity to monitor and operationalize procedures related to managing the diagnostic/prescriptive procedures.

The field-testing level was to differ from the training level in two critical ways. First, the major emphasis shifted from the acquisition of basic skills by teachers to designing operational procedures and to a focus

on the learning of children. Second, this level was to emphasize the maintenance of the appropriate diagnostic/prescriptive behaviors by teachers over an extended period of time. This level of the development stage was not implemented because of lack of time. A period extending beyond two years was required for full implementation of this project function.

Inservice Delivery System and Outcome

The inservice delivery system was designed to utilize an existing program. One of the University of South Florida undergraduate programs for the preparation of elementary teachers is unique in that emphasis is on continuous involvement with children of all ages and grade levels. A team of 25-30 students, under the direction of a team leader, worked together throughout the last two years of their undergraduate program. These students are at a school four days each week and spend 10-12 hours per week for four quarters in classrooms. Additionally, a full week of teaching days is required in each of the last three quarters.

College professors are active participants in these field experiences and the school setting provides opportunities for interaction between college professors, teachers, students and community personnel. One such team was located at the project target school and served important functions in the project program. A unique outcome was that the school staff could be available for inservice or staff meetings during the school day while interns were present.

Such a setting also afforded for the college professors to observe interns during the day-to-day operation of the project and to become involved in what was happening at the school.

As a result of this program being used teachers were released two mornings per week for inservice. Teachers also attended inservice two afternoons per week for the first year of the project and one afternoon per week during the second year.

A second team was important in the functioning of the inservice delivery system. The Operations Team regulated the project's daily operation; namely, administration, evaluation and program development. Membership on this team was composed of five university training coordinators, the Mitchell School principal, the team leader, the community coordinator and one intern.

This team was responsible for planning, decision-making, implemen-

tation, and dissemination. In this scheme, the director assumed the role of executive secretary and each member of the team performed the tasks assigned to him/her by the team.

Clinical Practice Training Teams were organized to include members of the school staff, university staff and Teacher Corps interns. These team members progressed through selected experiences in teams of approximately six members.

Conclusions

The evaluation data gathered by the project indicated that both the research adaptation process and the inservice delivery system were viable in a field-based project.

The processes of research adaptation were an integral part of the diagnostic/prescriptive model used in the project. These processes presented no problems to the inservice delivery system.

A great deal of data was gathered to support the delivery system. Committee minutes, inservice schedules, subject matter outlines, staff activity logs, inservice assessments, classroom observations (NOTICE), and student achievement data indicated that the delivery system was an effective means to meet project goals.

The main lesson learned was that the complex training model was too difficult to implement in two years. At the end of the project, teachers had only dealt with the learning problems of one student at a time and had not experienced the task of planning prescriptions for groups of students or a total classroom.

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6 Adapting Research Findings in Psychological Education: A Case Study

Sharon N. Oja

Teaching staff through a comprehensive and collaborative needs assessment process identified psychological education as one of the major thrusts for inservice work and research adaptation in the University of New Hampshire-Portsmouth Teacher Corps project. This chapter will report on teachers' adaptation of specific research findings in psychological education dealing with the areas of ego, moral, and conceptual development. In addition, the chapter will describe a study designed to test the efficacy of adapting a new teacher inservice training model in the two-year University of New Hampshire-Portsmouth Teacher Corps project in a junior high school. The adaptation model provides for acquisition of information and training in the skills of facilitative and psychological teaching. Most important, the model attempts to promote teachers' own cognitive-developmental growth.

Joyce (1975) has discussed the research showing that emphasis on professional skills training in models of teaching is successful if teachers are pointedly asked to reproduce the model; unfortunately, there is little change in teachers' typical everyday teaching behavior back in the classroom. Mann (1976), too, in a recent Rand Corporation study of educational change found almost no transfer of the skills training to the everyday-classroom when training was over, funds were depleted, and programs were completed. More recently, cognitive-developmental theory has suggested productive alternatives to earlier approaches of inservice teacher education.

This study views teacher inservice education as a powerful arena in

which to promote adult development for positive professional ends. The complex process of promoting personal/psychological growth is minimally reflected in programs today. Current emphasis has instead stressed objective and performance-based teacher education. The cognitive-developmental theories of Jane Loevinger, Lawrence Kohlberg and David Hunt offer possible new directions. The goal of this study is deliberately to promote ego maturity, principled moral reasoning, and conceptual complexity on the part of inservice teachers. This will help to increase the likelihood that the professional skills training of communications and indirect teaching that teachers receive in the curriculum, and that are needed in various models of teaching, will transfer to the classroom in the form of stable, enduring behaviors which increase teacher effectiveness with students.

Research Base

This study in the UNH-Portsmouth Teacher Corps project is one which is an adaptation. It builds upon the Deliberate Psychological Education base laid down by Mosher, Sprinthall, Erickson and others (see special issue of *Counselor Education and Supervision*, 1975; *The Counseling Psychologist*, 1977 and *The Personnel and Guidance Journal*, 1974 for recent research). The first research efforts within the Deliberate Psychological Education model to attempt to promote inservice teachers' psychological development were carried out by Bernier (1976) and Oja (1978). These studies varied from the norm of inservice education research by promoting cognitive -developmental change as well as skills acquisition. This adaptation to the UNH-Portsmouth Teacher Corps project attempts to investigate the possibilities of adapting to an ongoing project.

In particular, it is expected that this adaptation will lend more information to an issue raised by the earlier work. An upward shift in moral/ethical and conceptual thinking would theoretically improve the learning atmosphere in somewhat conventional classrooms. Teachers, as well as participant observers in Oja's study, reported this to be the case. However, the self-contained classrooms traditionally clustered may have represented a ceiling or lid on the amount of developmental change possible (see discussion in Oja and Sprinthall, 1978). The previous study did not go beyond the classroom as it currently existed. It was suggested then that, in order for major change to occur in adults' levels of ego development as well, significant change would be required in the entire educational environment including how the school as a system is organized. What would

happen in a Teacher Corps project that involved an entire school? Would change initiated by Teacher Corps create shifts across all three measures of teachers' cognitive-developmental thinking?

The current study in the UNH-Portsmouth Teacher Corps project represents a design to implement and evaluate an inservice developmental education training program aimed to promote positive movement through the developmental stages of personal and social growth in adult teachers, along ego, moral and conceptual dimensions as these adults adapt research findings into their classroom applications.

Cognitive-developmental theories of growth assume that human development results from changes in cognitive structures. The theories of Piaget; Kohlberg; Loevinger; and Harvey, Hunt and Schroder posit a sequence of hierarchical, invariant stages of cognitive development. In each theory higher stages are considered more adequate in the sense that they include multiple points of view, ability for perspective taking and greater complexity. The cognitive-developmental theories provide a framework for observing development in the following universes of thought: Piaget in cognitive processes; Kohlberg in moral reasoning processes; Loevinger in ego-maturity processes; and Harvey, Hunt and Schroder in conceptual processes. Cognitive-developmental theory suggests productive alternatives for inservice teacher education programs.

A small but growing body of literature and research in adult development based on cognitive-developmental stage models indicates that, although most adults seem to stabilize at certain stages, it may be possible to intervene directly to stimulate positive stage growth. It nas only been recently that cognitive-developmental researchers focused on growth of teachers (Bernier, 1976; Oja, 1978; Glassberg, 1977).

Literature on inservice teacher education indicates the need for systematic research directed to both the personal and professional growth of teachers (Joyce, Howey and Yarger, 1976). Teacher training models today attempt to meet educational needs by offering newer, broader and more complex roles for teachers including the roles of indirect teacher, group discussion facilitator, supportive supervisor and counselor within the classroom (summarized from Joyce and Weil, 1972; McKibbin, Weil and Joyce, 1977). However, the majority of teachers do not develop expertise in these areas. This fact is tragic in light of the research which relates mastery teaching, indirect teaching and facilitative teaching with positive classroom climate and positive student performance and attitude (Amidon and Flanders, 1971; Aspy, 1972; Bloom, 1976; Schilling, 1976). Educators recognize that teachers need training in these professional skills. However,

training in specific models of teaching has not resulted in general transfer of these skills to use in the classroom. Consequently, research is needed on the personal growth of teachers.

An alternative model of teacher training emphasizing personal growth is suggested by a growing body of research on cognitive-structural development. Research by O.J. Harvey, David E. Hunt and Harold M. Schroder suggests that teachers at higher conceptual levels may be more flexible, more stress tolerant, and more adaptive than teachers at lower conceptual levels.* They may be more able to function in highly student - centered environments where their role is to utilize the learner's frame of reference and encourage students to question and hypothesize at higher levels. The research evidence also suggests that teachers at higher conceptual levels may be able to assume multiple perspectives, utilize a wide variety of coping behaviors, employ a broader repertoire of teaching models,and, consequently, be more effective with students. These stages of conceptual level have been correlated with higher stages of moral/ethical development and ego development in the work of Sullivan, McCullough and Stager (1970). Educators may consider applying these theories and principles to promote teachers' development toward higher conceptual levels and to look at different goals aiming toward student and adult moral and personal development within the educational systems.

This study represents an adaptation employing this alternative model of Deliberate Psychological Education with one school of junior high teachers in a Teacher Corps project. The first and second generation studies were designed by a staff of University of Minnesota faculty and graduate students in the Department of Developmental Education and were reported by Bernier (1976) and Oja (1978). This current study represents an adaptation of the Developmental teaching model upon which Deliberate Psychological Education programs are based. This model has been related to current research programs in psychological growth and development by Sprinthall and Mosher (1978). The model for inservice teacher education represents a systematic approach from a theoretical and research based framework. This framework has often been lacking in teacher education programs and, consequently, is being called for currently by educators such as Howey (1976) and Shutes (1976) and reiterated in Joyce, Howey, and Yarger's (1976) mammoth report of the current status of inservice teacher education.

The design of the developmental model for inservice education utilized

*See discussion in Oja, 1978.

the previous research on developmentally based Deliberate Psychological Education interventions with adolescents and college students in combination with research data on cognitive-structural stages in adulthood (see Oja, 1978, 1979b). The basic assumptions were: (1) qualitative differences exist in cognitive, ego and moral stages; (2) interaction and disequilibrium initiate cognitive-structural change; (3) curriculum and teaching strategy should offer multiple role-taking opportunities which, for adults, must include new experiences of responsibility and choice; (4) open communications and supportive colleague relationships enhance role-taking experiences. Few adults naturally progress to the higher developmental levels; thus, there is a need for systematic interventions which stimulate adult cognitive-developmental growth.

Glassberg (1977) designed a program for pre-service student teachers which did promote significant gains in their ego maturity scores and their moral judgment scores as well as their indirect teaching and communications skills. Bernier (1976), in the first generation study with inservice teachers, reported significant gains in moral judgment scores; and in the second generation study Oja (1978), using larger samples of inservice teachers, more adequate controls, and a more powerful intervention, was able to show significant differences between experimental (N = 37) and control groups (N = 25, N = 23) on two of three dimensions of psychological growth, moral judgment reasoning and conceptual level. Oja, Glassberg and Bernier all reported that experimental teachers significantly increased their ability to accurately identify and respond to human emotion. Oja, in addition, found significant improvement in elementary teachers' ability to employ the dimensions of indirect teaching which Flanders' research shows is more effective than the traditional directive approach (Flanders, 1970). Finally, all Oja's experimental teachers attempted to design and try out mini units in their own classes in which they were involved in contracting for individualized instruction, teaching communication skills and supervising peer counseling, peer teaching, and cross-age teaching. In all units, teachers were responsible for facilitating effective discussions to help students make sense of their new learnings. These mini units characterize the research of Deliberate Psychological Education with students taking on responsible genuine roles in active learning situations with systematic reflection. The teachers kept written journals of their activities. These teachers' journals reflected their risk-taking to learn the skills of a psychological educator; their hesitancy at first, to open-up with colleagues; their success and failure in applying the skills to the classroom. Equally important, the journals substantiated changes in teachers' levels of

psychological/moral/ethical development: their increasing ability to reason more abstractly, be aware of alternatives, take multiple perspectives, and be more sensitive to the emotions of self and others.

Questions raised by these earlier studies suggest the need for logical extensions in further studies. Will major role shifts (e.g., to leadership positions through Teacher Corps institutional change) result in greater developmental growth? Does change in teachers' developmental stages have any positive benefit for other teachers and staff? Can the curricular inservice model successfully be adapted to an entire school? What problems arise in adaptation of the model to an in-school, on-site Teacher Corps project? Will teachers highly involved in the developmental education focus of the project differ in developmental growth from teachers involved in the Teacher Corps experience without the Deliberate Psychological Education focus?

Adapting Research

This adaptation will investigate issues in extending the clearly defined model in the earlier work to new environments, and it is expected to provide a more definitive test of the necessity of certain aspects of the original intervention model.

Teachers who function at higher levels of psychological development can meet students' needs flexibly. The objective of this study is to adapt and evaluate a curriculum aimed to promote teacher development and provide teachers with important skills. Such a curriculum effort is unique in teacher training. Successful application and adaptation may provide a powerful model for use in other institutions and settings throughout the United States. The goal is a teacher who has learned developmental theory and effective teaching and communication skills in order to adapt, implement, evaluate, and redesign, in a repeating cycle, teaching strategies and curriculum to promote student psychological and moral development.

In this developmental focus the teacher takes on the role of a psychological educator which is defined as a person who: (1) understands the theory of cognitive-developmental stages of growth, (2) has the ability to identify the levels of thinking in their students, and (3) is able to use facilitative, empathic responses that stimulate their students' own thinking. This process plus curriculum units which call for genuine responsibility-taking and active learning by students combine to make up the DPE model.

Delivery System

Twenty-one teachers from Portsmouth Junior High School, Portsmouth, New Hampshire, participated in a Spring semester, 1978, 4-credit graduate level course in Advanced Human Development developed in connection with the University of New Hampshire Portsmouth Junior High School Teacher Corps project. One third of these teachers took the course because it was required for the Teacher Corps related masters' degree program. The remaining two-thirds were interested volunteers. The course was taught on-site at Portsmouth Junior High School by the author.

The course focused on cognitive-developmental theory and made available to teachers research on deliberate psychological education with early adolescents, in particular Erickson et al. (1976), Nichols et al. (1977). Summaries can be found in the first report of the psychological education strand of the UNH-Portsmouth Teacher project (Oja, 1978a).

The course was designed as a seminar/practicum which provided a blend of action and reflection in the following eight ways:

(1) The theory and research related to cognitive-development stage models and the Psychological Education Teaching Model as they related to Junior High students and teachers was presented through readings, discussions and lectures, films, videotapes.

(2) Activities in which the teachers themselves participated during class included four sessions utilizing significant social role-taking skills of Deliberate Psychological Education including role playing, dilemma discussions, active listening, and empathic responding.

(3) Teachers kept journals of their reactions, thoughts and feelings related to course content and process; and through written dialogue with the instructor, teachers were given supportive comments to further extend their analysis and evaluation skills. Teachers also conferenced individually with the instructor.

(4) Teachers were asked to adapt research findings by trying out varieties of the skills needed in the newer role of teacher as a 'psychological educator' in the classroom. They were asked to write mini units aimed at their students' levels of personal/moral/conceptual development. Some teachers wrote units which helped them determine their students' developmental levels while other teachers attempted to design activities which would help them practice the skills of active listening and empathic responding

that are so important as the teacher takes on the additional roles of effective small group discussion leader, counselor and supportive supervisor in the classroom. The units were often results of teacher-voiced dissatisfactions with their current classroom behaviors, environments, student-student and student-teacher interactions, and their ability to determine students' learning problems. The units were evaluated by the teachers themselves, their students, and occasionally their colleagues in a formulative evaluation model format with the hope that through trials, evaluations, and reactions the units would be changed and tried, again and again, in a repeating fashion.

(5) Nineteen teachers produced video or audio tapes of one of their mini units to share with small groups of interested class members during class. This was an additional way for teachers to analyze and evaluate the unit and their own skills in trying to be a psychological educator in the classroom. Sharing their products through video tape also allowed participants the opportunities to learn from the experiences of their colleagues.

(6) In a final project teachers attempted to synthesize their experiences of the semester in either personal or professional terms; some wrote, implemented, and evaluated additional units; some wrote research papers tying developmental theory to certain classroom practices; some wrote partial autobiographies tying developmental theory to their own experiences of growth and some teamed to deal with mutual classroom concerns from a developmental stage framework.

(7) All teachers in this course agreed to participate in evaluation of their own levels of psycholocial and moral development.

In these ways the course design attempted to incorporate all four developmental focus points: (1) seminar approach with practicum experience, (2) significant social role-taking — the ability to take the perspective of others, (3) ongoing supervision, and (4) provision for support during times of disequilibrium in new learning.

During the class schedule 15 hours of theory were matched with 8 hours learning and practicing the skills of active listening and empathic responding. Most Portsmouth teachers tried out the active listening, empathic responding and group process skills in units with students. Few tried out more complex units in contracting, teaching communication skills, or peer teaching. Majority comments (heard in video tape feedback sessions

in class, 1-1 conferences outside class, and read in mini unit writeups and journals) revealed a need for greater confidence in using accurate levels of active listening, empathic responding and group processing skills with students and colleagues.

As a result of this need, the Teacher Corps staff instituted a one-week Project T.E.A.C.H. course involving 20+ hours of training in use of effective communication skills. The course was offered during the summer and most teachers took it. Later reports from a subgroup of teachers taking the course indicated that they learned the language of communication skills; but the course was taught in a more direct, didactic fashion, and few teachers genuinely risked practicing the skills among their small groups to achieve accurate levels of listening and responding.

The subgroup (reporting the above information) chose to continue focusing on Deliberate Psychological Education during the last week of the Teacher Corps summer session and the following year in what is called the Psychological Education Strand of the project.

Summer Session One-Week Course In Psychological Education

The fourth week of the summer session the subgroup (N = 7) focused on units to teach communication skills to students (see Oja, 1978a for a complete description). Two main research references were used: *Developing Effective Classroom Groups* by Gene Stanford (1977) and the *Promoting Psychological Growth and Moral Reasoning Project* by Ken Nichols and Mark Isham (1977). The teachers tried to adapt these research findings in their classes. Both sets of references are research-based in junior high classrooms. Teachers were also referred to the research report of Erickson et al. (1976) describing a Deliberate Psychological Education curriculum with junior high students, Sprinthall's (1976) Peer Counseling research and the Peer Teaching Program (Moran and Oja, 1976) which had taught active listening and empathic responding skills to junior and senior high students in math and science over a seven year period. From additional reference texts, teachers found *Facilitative Teaching* by Wittmer and Myrick (1974) to be very helpful.

Fall, 1978 Course in Psychological Education

A core group of teachers from the summer session (N = 7) continued to practice and improve their social role-taking skills by leading moral

dilemma discussions in their classrooms in the Fall. The teachers also seemed to want a further basis in understanding moral development and a supportive place to discuss their questions, difficulties, and classroom applications. The research-based references used were: Galbraith and Jones (1976), Mattox (1975), Beyer (1976), Fenton (1976), Kohlberg and Gilligan (1971), and Kohlberg (1973). Various journal articles were available for optional reading. Teachers brought in their own newspaper, magazine, and T.V. examples, too.

The four focus points of developmental approaches to education were included in the following ways. The weekly seminars were used also to share video taped playbacks from classroom practice. These feedback sessions maintained and enhanced the high group cohesion and supportiveness exhibited during the summer course. Teachers continued their journal keeping. The instructor continued to model various teacher roles: contracting with teachers, individual conferences and supervision, facilitating group discussion, modeling dilemma discussion techniques, supportively supervising video feedback sessions, and dialoguing through journals in both supportive and challenging ways.

Teachers' skills have improved in active listening, empathic responding, and group processing needed in dilemma discussions. Their confidence in dealing with controversial issues that come up in school and in class has greatly improved. They report that they are better able to discriminate and choose to deal with issues that are important for the development of junior high students, themselves, their families, and their colleagues. The majority of the group said they used to avoid most controversial issues.

Spring, 1979 Psychological Education

The core group of teachers from Fall, 1978 asked this writer to facilitate a Teacher Support Group in the Spring of 1979. They wanted a seminar for no credit to discuss new learnings, questions, and personal/professional dilemmas in a supportive atmosphere. Seven teachers participated. Others were too involved in finishing courses for their Master's program.

In another class, five PJHS teachers are trying to adapt research in peer teaching to their courses. The research reports in peer teaching were: Enright (1977), Cognetta and Sprinthall (1978), Moran and Oja (1976), Almeida et al. (1974), Erickson, Rustad, and Sprinthall (1975). Teachers have just begun to adapt more complex psychological education cur-

riculum like contracting for individualized instruction, peer counseling and peer teaching to promote their students' psychological and moral growth.

Design of the Study

The study uses multiple assessments. The dependent variable, cognitive-developmental functioning, is composed of three dimensions measured by the Loevinger/Wessler Sentence Completion Test of Ego Development (Loevinger and Wessler, 1970); the Hunt Paragraph Completion Test of Conceptual Level (Hunt et al., 1973); and the Rest Defining Issues Test of Moral Judgment Reasoning (Rest et al., 1974). All teachers participating in the Spring, 1978 course (N = 21) agreed to testing and took the pretests in February, 1978 and the first posttests in June, 1978 and the final posttests in April, 1979. Each of the participants made one audio or video tape of a unit used during Spring, 1978 and was asked to make a final video tape in Spring 1979. Every participant kept a journal during the course. Participants also wrote responses to a communication skill measure in Spring 1978 and Spring 1979.

A small cadre of teachers (N = 7) from the Spring 1978 course continued studying and practicing the skills of developmental education in a summer session course and a fall semester course. A subset is now continuing in a Spring semester Teacher Support Group. Teachers in the group have kept additional journals and made additional video tapes.

It is hypothesized that this cadre of teachers who continued to actively broaden their teacher role by becoming a developmental educator in the classroom will show the greatest developmental growth. This will be substantiated by analysis of their video tapes according to Flander's Interaction Analysis System, analysis of their ability to respond accurately to human feelings and content of a message according to Thompson's Reflection of Feeling Scale (similar to Carkhuff and Gazda measures), evaluation of their mini units, and content analysis of their journal entries.

A variety of other PJHS teachers have been involved in varying degrees in Teacher Corps activities. All Portsmouth teachers will be asked to participate in the final posttesting in April, 1979. The testing is an attempt to investigate the cognitive-developmental growth of teachers in relation to their level of participation in Teacher Corps activites.

There was no possibility of a control group at PJHS in the pretesting. However, comparison with Oja's original Minnesota sample of experimental and control groups will provide additional information.

Results

Results, thus far, are based on critical events in (1) the process of adapting the developmental education model for inservice teachers to the Teacher Corps project and (2) junior high teachers' initial attempts to adapt psychological education curriculum in classrooms.

The large course in Spring 1978 attempted to adapt all focus points from the developmental approach to inservice education model. The large group (N = 21) was divided into three small groups of the last one hour of each three hour class sessions. In the small groups, participants were asked to actively try out certain active listening, empathic responding, group processing, social role-taking skills. The instructor was aided by two teaching assistants which meant that each of the three small groups within the class had an experienced leader who could facilitate and model the skills accurately. The small groups were self-chosen. Two of the three groups were effective. The third group was resistant. The journal entries kept individually by the two teaching assistants and the instructor and the teacher-participants corroborate the workings of the small groups.

The practice on skills (8 hours total) is less than the training time in Oja's original model (30 hours). As a result, the mini units in Spring 1978 became ways in which teachers could initially try out the skills which were modeled in the course. This differs from the original model in which teachers felt confident of the skills and were able to implement units aimed toward their students' development. Teachers aimed initial units at their own learning and practicing and, secondarily, at their students' development. Evaluation and suggestions for change at the end of each of the units reflect teachers' feelings of inadequacy in their skill levels and their need to learn and practice more in order to make changes that they'd like in their classes. Only now in the 78-79 school year some teachers have began to adapt the research in psychological education in ways which use the skills of a developmental teacher and give students genuine responsibility in situations where students are systematically helped to make sense of their new learnings and experiences (i.e., individual contracting, peer teaching, peer counseling). These will be described in a forthcoming report.

Many aspects of the original developmental approach to inservice education curriculum — journals, conferences, peer supervision, video tape analysis and feedback, small group modeling — were fairly new experiences for teachers and, as such, were initially uncomfortable. These presented challenges and difficulties along the way in the Spring course of

1978. There were times of adversary positions taken by participants and instructor alike. The risk-taking to try out new behaviors and new ways of interacting in spite of, or in light of, well determined, long established patterns of behavior with 21 fellow teachers, not to mention instructors and students, was a challenge. The challenge was occasionally overwhelming; leading participants to retreat to older, more comfortable and somewhat rigid patterns of behavior. Support and group cohesiveness grew slowly. As instructor, I felt things weren't happening fast enough. My feeling of success in the original model after a summer five-week training workshop stood out like a carrot that I wasn't able to grasp. I realized that it was going to take time. But time was on my side. A core group of teachers in the class wanted to continue with developmental theory during the '78 summer session and the '78-'79 year, and I would have the time to continue working with them.

The small group that continued in the psychological education strand will be reported in an upcoming volume (Oja, 1979). In a summer one-week intensive experience, members of the group met three to four hours daily and developed the supportive atmosphere not always present in the large course enabling more risk-taking, more honesty, and more self - analysis with the total group. They had just finished a course in more effective communication skills so they spoke a common language and felt more confident of their understanding of the need for the skills. They were not totally confident of their ability to accurately use the skills; yet, improvement was evident. All did recognize the need for supportive/conducive atmospheres to encourage risk-taking on newer behaviors, the necessity to provide for this in classrooms, and the need to have this type of atmosphere for their own willingness to take risks in new learning.

In a Fall 1978 course, the subgroup learned how to lead effective moral dilemma discussions. Focus was still on learning and practicing new skills. From video feedback, members of the group saw more success, yet did not feel totally natural in these newer teacher roles. There was a beginning sense of the need for students to use capabilities to take genuine responsibility in classes. Teachers began to plan accordingly.

Long-term success of the psychological education strand of the University of New Hampshire-Portsmouth Teacher Corps project can be evaluated by the transfer of developmental theory and the skills in being a "psychological educator" to the classroom in curricula designed to give students real responsibility and experiences for role-taking. The atmosphere is designed to help students make sense of their learning through systematic reflection and discussion.

The cadre of teachers who continued focusing on psychological education throughout the year have been successful in learning and practicing the skills of a developmental educator. Teachers know the stages of ego, moral, and conceptual development of junior high students. They are often able to use active listening and empathic responding skills at an accurate level to facilitate individual interactions and group discussions. Some have now begun to design curriculum which creates a balance between giving students genuine experience and providing careful and systematic reflection on the meaning of that experience.

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SECTION III

RESPONSE TO RESEARCH

The response to research addressed by the Teacher Corps projects in this section represents efforts at seeking new knowledge related to student behaviors, teachers, and classrooms as learning environments. These projects have made marked progress in bridging the age old gap of theory to practice in education.

Educators once believed that knowledge possessed was an absolutely reliable store of knowledge that enabled us to give authoritative answers to questions. Modern researchers have become less dogmatic because advances made by science within the past century have overthrown some long-standing theories.

These Teacher Corps projects make no claim that the conclusions drawn are infallible, rather they invite all educators to confirm and modify their findings. No one is more cognizant of the fallibility of knowledge than those who have engaged in action research.

The subjects of research in these four projects are the learning and behavior of human beings and the settings in which they act and react.

Walthew and d'Ambrosi consider the adaptation of research on reading comprehension skills. An inservice training program was designed which emphasized the Taxonomy of Reading Comprehension developed by Thomas Barrett. Instruction in increasing pupils' attending behaviors, diagnosing and correcting work attack problems and comprehension problems are the highlights of the inservice program.

Wheeler, Yetter and Castine acquaint the reader with a change model aimed at clarifying needs of target groups and the relationship between teacher requests and delivery of inservice training. In addition, temporary systems and entry concepts are defined and applied to the planning and conducting of short term educational programs and project management.

Brent, Griffith, Arnold and Brent focused on student behaviors by improving student learning of basic skills. The treatment for improvement of achievement in math, reading, and spelling consisted of a measurement system called Precision Teaching.

The final paper by Lougheed describes a Youth Advocacy project in which student autonomy is encouraged through the development of student-initiated activities by establishing and maintaining a Youth Corps. The program also designs and implements a social studies curriculum supporting and encouraging student-initiated activities.

The research conducted by these projects can help educators improve their instruction by adjusting their environment and currriculum to benefit the achievement of children.

7 Improving Reading Comprehension Instruction in Elementary Grades

John K. Walthew
Sylvia B. d'Ambrosi

School staffs rarely turn directly to the products of educational and psychological research to guide them in making curriculum changes. When research products are used in changing curricula, they are usually acquired as packaged programs and materials. Teachers infrequently are aware of the research base of the programs/materials comprising the curricula used in their schools.

The Research Base

In the 12th Cycle Trenton State College-Trenton Public Schools Teacher Corps project it was decided to adapt research on the reading comprehension skills. This research would be a basis for implementing the project's major objective of improving reading comprehension instruction at Wilson Elementary School in Trenton, New Jersey. An inservice training program was designed which emphasized the taxonomy of Reading Comprehension developed by Thomas Barrett (undated). The taxonomy, which evolved from the work of Bloom (1956), Sanders, (1966), Letton (1958), and Guszak (1966), was an attempt to define, classify, and order comprehension ability. The taxonomy categorizes reading abilities into four areas: (1) literal meaning, (2) inferential meaning, (3) critical thinking, and (4) appreciation. Within each area, specific subskills are identified. An outline of Barrett's taxonomy is presented in Figure 7.

Figure 7
Outline of Barrett's Taxonomy of Reading Comprehension

1. Literal meaning

a. Recognition or recall of details
b. Recognition or recall of main ideas
c. Recognition or recall of sequence
d. Recognition or recall of comparison
e. Recognition or recall of cause and effect relationships
f. Recognition or recall of character traits

2. Inferential meaning

a. Inferring supporting details
b. Inferring main idea
c. Inferring sequence
d. Inferring comparisons
e. Inferring cause and effect relationships
f. Inferring character traits
g. Predicting outcomes
h. Inferring about figurative language

3. Critical thinking

a. Judgments of reality or fantasy
b. Judgments of fact or opinion
c. Judgments of adequacy of validity
d. Judgements of appropriateness
e. Judgments of worth, desirability, or acceptability

4. Appreciation

a. Emotional response to content
b. Identification with characters and incidents
c. Reaction to author's use of language
d. Imagery

Research Adaptation Process and Delivery System

Reference to the 10th Cycle Trenton Teacher Corps project is necessary for more complete understanding of the 12th Cycle inservice training goal and process. In 10th Cycle, the Trenton project developed an eight module staff development program designed to improve reading instruction at Wilson School. This inservice program provided Wilson staff members with instruction in increasing pupils' attending behavior, diagnosing and correcting word attack problems, and diagnosing and correcting comprehension problems. A brief description of the content presented in each module is included in Figure 8.

Figure 8
Inservice Training Program for Diagnosing and Correcting Reading Problems

1. Module One *Identifying Pupil Behavior*

Increases teachers' skills in observing, recalling, and describing pupil behavior during reading instruction.

2. Module Two *Classifying Pupil Behavior in Reading*

Improves teachers' skills in identifying pupils who are off-task during reading instruction; improves teachers' skills in determining whether on-task pupils' behavior during reading instruction is productive or unproductive.

Introduces teachers to techniques for making reading behavior more observable so that productivity—unproductivity can be more easily determined.

3. Module Three *Changing Off-Task Behavior in Reading*

Introduces teachers to a variety of techniques for bringing inattentive pupils on-task during reading instruction.

4. Module Four *Diagnosing Decoding Problems in Group Settings*

Offer teachers strategies for recording and classifying pupil decoding errors during group reading instruction. A technique is provided for comparing pupil decoding errors for the purpose of planning corrective lessons for group instruction.

Offers a technique for comparing pupils' decoding worksheet/workbook performances to determine weaknesses that can be corrected through group instruction.

5. Module Five *Diagnosing and Correcting Individual Decoding Problems*

Offers teachers a procedure for administering a modified informal reading inventory to individual pupils requiring diagnosis of decoding problems extending beyond that able to be accomplished during group reading instruction. Strategies for organizing and interpreting decoding information collected through the informal reading inventory are provided.

6. Module Six *Identifying Comprehension Skills*

Defines and exemplifies specific reading comprehension skills in the following cognitive or affective areas: (1) literal meaning, (2) inferential meaning, (3) critical thinking, and (4) appreciation.

7. Module Seven *Diagnosing Comprehension Skill Problems in Group Settings*

Provides teachers with three techniques for diagnosing pupils' reading comprehension problems during group reading instruction involving basal reading materials.

8. Module Eight *Correcting Comprehension Skill Problems*

Offers teachers a comprehensive strategy for correcting diagnosed literal and inferential comprehension problems. The strategy emphasizes corrective activities at three levels of cognitive functioning: (1) concrete, (2) representational, and (3) symbolic.

Offers teachers a strategy for improving critical thinking reading comprehension skills based on the use of games; offers teachers a strategy for strengthening appreciation reading comprehension skills based on teachers' reading aloud to students.

Initially, the content of each training module was presented to the teachers as "knowledge". After accomplishing the knowledge phase of each module, participants practiced what was just learned. The inservice training included two kinds of practice: simulation and performance. Immediately after finishing a module, teachers completed simulation activities demonstrating their grasp of the information acquired. Simulated practice was followed by activities which teachers practiced in their classrooms over a two-week period. This type of practice became known in the project as "performance". All regular classroom teachers in grades 1-6 of Wilson School took part in the inservice training.

As a result of the 10th Cycle training experience, the project evolved a model for inservice staff development. A schematic of this model is provided in Figure 9. As indicated in Figure 9, the instruction component of the model includes four sequenced phases: (1) knowledge acquisition, (2) practice, (3) internalization, and (4) adaptation. Only two of the phases—knowledge acquisition and practice—were employed during the 10th Cycle staff development activities training.

In 12th Cycle, the Wilson School staff decided that the inservice training modules containing content on reading comprehension were the most useful and timely for improving pupil achievement. Specifically, the Wilson teachers focused attention on the module concerned with identifying reading comprehension skills. This module included 21 skills from all four areas of Barrett's Taxonomy. These skills were selected for inclusion in the module by an Inservice Program Advisory Committee of Wilson School staff members. The Advisory Committee consisted of a teacher from each of the five units in the school, one paraprofessional, and the reading coordinator.

The Inservice Program Advisory Committee, in selecting the reading comprehension skills for inclusion in the 10th Cycle training program, was generally unaware that the skills were part of Barrett's Taxonomy. The skills were identified during "brainstorming" sessions involving the advisory committee and project staff members. It was only afterwards that the committee was informed of the relationship between its list of reading comprehension skills and Barrett's Taxonomy.

In 12th Cycle, the Inservice Program Advisory Committee decided to place special emphasis on the literal and inferential meaning skill areas. Five literal and four inferential skills were selected as follows:

1. Literal meaning
    a. Recognition or recall of details

Figure 8
Trenton Teacher Corps Project
Model for Inservice Staff Development

PROCESS		PRODUCT: Content Determination						Strategies / Materials: Instruction				
		Problem Identification	Problem Verification	Solution Identification	Solutions/Resources Comparison	Solution Decision	Content/Procedures Selection	Knowledge Presentation	Simulation	Practice: Performance	Internalization	Adaptation
CONTENT DETERMINATION	Problem Identification	1										
	Problem Verification		2									
	Solution Identification			3								
	Solutions/Resources Comparison				ITAD Step4							
	Solution Decision					5						
	Content/Procedures Selection						6					
INSTRUCTION	Knowledge Acquisition							X				
	Simulation								X			
	Practice: Performance									X		
	Internalization										X	
	Adaptation											X
EVALUATION	Content Selection / Procedures Assessment	X	X	X	X	X	X					
	In-service Instruction: Teachers							X	X	X	X	X
	Assessment: Pupils									X	X	X
	In-service Instructors							X	X	X	X	X
	Administrators										X	X

b. Recognition or recall of main ideas
c. Recognition or recall of sequences
d. Recognition or recall of comparisions
e. Recognition or recall of cause and effect relationships

2. Inferential meaning
   a. Inferring supporting details
   b. Inferring main ideas
   c. Predicting outcomes
   d. Inferring about figurative language

The plan developed by the Inservice Advisory Committee called for the Wilson staff to internalize the literal and inferential reading comprehension skills which had been selected. In choosing internalization, the Committee referred to the instruction component of the staff development model which evolved as a result of 10th Cycle inservice training activities. Internalization is the third phase in the instruction process which also includes knowledge acquisition, practice, and adaptation.

Four strategies for helping the Wilson staff internalize reading comprehension skills were developed and implemented during the course of 12th Cycle. These strategies are:

1. Preparation of pupil comprehension skill learning materials by teachers and paraprofessionals.
2. Time periods for teaching the comprehension skills within regular reading instruction.
3. Teacher planned and conducted inservice workshops for using pupil comprehension skill learning materials.
4. In-class inservice assistance from college faculty during the comprehension skill instruction time blocks.

As a means of internalizing the selected literal and inferential reading comprehension skills, the Advisory Committee recommended that the Wilson staff develop pupil learning materials on a wide range of reading levels. The plan for developing pupil learning materials was presented by the advisory committee to the total Wilson School staff at the beginning of the 1977-78 school year for approval; it was granted.

Three primary teams developed learning materials on levels ranging from readiness to third grade; the four intermediate teams focused on reading levels from preprimer to sixth grade. The learning materials included paper-and-pencil activities such as games. The work was accomplished

two afternoons a month during time when pupils were released from school. A total of twelve work sessions were held in 1977-78.

A major purpose of the learning materials development strategy was to provide the Wilson teachers with an in-depth working knowledge of the reading comprehension skills. Early in the project a number of teachers realized that the mere development of pupil learning materials was insufficient. As the inservice work progressed in 1977-78, an awareness of the need to teach the reading comprehension skills, using the materials being developed, increased. Consequently, the Inservice Program Advisory Committee devised a plan for teaching each of the literal and inferential skills in a time period which would be part of overall reading instruction at Wilson School. The designated time periods were two-week blocks in which a single reading comprehension skill was emphasized. Each block would begin and end with a test in the comprehension skill being taught. The comprehension skill teaching blocks would alternate with two-week blocks devoted to word attack instruction. Establishing a time within reading instruction for teaching reading comprehension served to incorporate this entire instructional activity into the school curriculum.

The two-week comprehension skill teaching block was tested during the latter part of the 1977-78 school year, and problems noted. As a result of the test, a workshop was arranged for Summer 1978 to develop final plans for establishing the comprehension skill teaching blocks in the 1978-79 reading program. The plans were developed by the Inservice Program Advisory Committee, now augmented to include school unit leaders and members of the School Reading Committee. As a result of the summer workshop, the advisory committee assumed full responsibility for orienting the remaining teachers and paraprofessionals to using the comprehension skill teaching blocks. An orientation session for the entire school staff was followed by a series of workshops on using commercial and teacher-made materials in comprehension skill instruction. These workshops for teachers and paraprofessionals were planned and conducted by members of the advisory committee during the early part of 1978-79.

In 1978-79, each teacher at Wilson School was assigned a Trenton State faculty member to assist in providing reading comprehension skill instruction. This on-site assistance offered during the reading comprehension skill instruction time blocks, included teaching demonstration lessons, critiquing teachers' lessons, diagnosing and correcting pupils' reading comprehension problems, and obtaining additional comprehension materials needed for instruction.

Each of the four strategies for internalizing the reading comprehen-

sion skills selected from Barrett's Taxonomy has served to make the skills a more permanent part of the cognitive structures of teachers at Wilson School. Some teachers in the school participated enthusiastically in all four strategies; all teachers participated in some of the strategies.

Outcomes

Institutionalization

Evidence of the institutionalization of teaching reading comprehension skills at Wilson School is available in various forms ranging from frequently collected quantitative student data to event recording of anecdotal information.

The outcomes fall into two global areas of "adoption" and "adaptation." The first area refers to the use of the delivery system to implement educational change through inservice actions. This includes the planning, internalization, and start up phases of the change.

The second area, adaptation, refers to modifications that occur in the use of the educational change. The modifications originate from the people in the permanent system who are using the change. Adaptation is a continuous process which occurs as a response to the needs and constraints experienced by people in the permanent system. It occurs at varying times and may take varying forms. Monitoring is needed so that the original goal is achieved. The demands and constraints of the permanent system are used as boundaries for the variety of adaptations which may occur.

Adoption: Teaching Staff

The teaching staff has demonstrated adoption of the reading comprehension skills program in several ways. Staff members participated in all major decision-making, planning, and implementation activities. They selected the area of reading comprehension skills for the inservice thrust and the strategy of instructional materials development by the teaching staff as the major internalization tool. They planned the schedules and procedures for implementing the reading comprehension skills program and organized and keyed the instructional materials according to the skills. They also planned and conducted an orientation workshop to initiate the reading comprehension skills program. In addition, they conducted seven inservice workshops designed to develop an awareness of the materials and techniques available in their school for teaching the skills.

A most important indicator of adoption is the occurrence of the teaching of the skills in the classroom. The teachers in grades 2-6 have been reporting student performance in terms of the reading comprehension skills since the program began in October 1978. The resource room records show pupil instructional materials are used. Another measure of occurrence of instruction is the weekly observation of teachers by college faculty during the skills time blocks. The observation data show that pupils are receiving lessons focusing on the reading comprehension skills.

The teaching staff continues to be involved in the decision-making process. Specific plans now exist for the teachers to review their experiences thus far and participate in planning how the reading comprehension skills program is to be continued in the future.

In choosing the area of reading comprehension skills for school-wide inservice, the teachers have committed themselves to a common body of instructional content. This will permit them to monitor their students from year-to-year according to a school-wide set of skills.

The selection of the process of instructional materials development for internalization has resulted in the production of a large quantity of material. Seventy packets were developed covering all reading levels (readiness-grade 1) for all five literal skills. An additional 24 packets were completed covering some of the inferential skills. Teachers became concerned that some materials were not the designated skill or reading level. This necessitates their carefully scanning the materials prior to use.

Another measure of internalization is a two-part subjective rating of the teaching staff's knowledge of the skills covered while developing the materials. Trenton State College instructors providing the inservice training were asked to indicate the number of Wilson School staff members who fell into each of three categories of skill knowledge in October 1977, and later in May 1978.

Table 4 shows that, whereas 23 staff members could not define the skills in October 1977, there were only four remaining in this category seven months later in May 1978. Two of these four were staff members who were absent from the inservice sessions for several months.

The data in Table 4 are reported and summarized in the form of frequencies due to their subjective nature and the use of recall over a number of months.

Table 4
Frequency of Wilson School Staff Members Rated According to Knowledge of Reading Comprehension Skills.

Skill Knowledge Category	Time Oct. '77	May '78
Cannot define skills covered to date	23	4
Can define skills covered to date	9	19
Can develop activities on their own to teach each of the skills covered to date.	10	19

Adoption: Administration

One very important catalyst for the institutionalization of reading comprehension skills program was the continous support of the principal throughout the project. The principal demonstrated support in various ways. First, he was generally available during planning efforts and provided guidance and suggestions and clear approval of plans. He familiarized himself with the framework and goals of the project, provided decisions based on the needs of the school and project effort, and reinforced and monitored the teachers' efforts, since he understood their goals and was informed of their plans.

Second, the principal provided meeting time for his staff and permitted other schedule arrangements to facilitate adoption efforts. Another way he supported the project was through the candid nature in which he handled problems and a general willingness to put forth the effort to help solve them.

Adoption: Students

The third population affected by project efforts are the students at Wilson School. Evidence of the effect of institutionalization on the pupils is available from progress records kept by the teachers. These data indicate that 398 children in grades 2-6 received instruction in the literal reading comprehension skills from October 1978-February 1979. Table 5 indicates the number of pupils who were posttested in each skill area. Table 6 analyzes the same data to a finer degree by adding the dimension of reading level.

Table 5
The Number of Wilson School Pupils Posttested
In Each Reading Comprehension Skill Area
from October 1978-February 1979

Literal Reading Comprehension Skill	Number of Pupils Posttested
Detail	148
Main Idea	363
Sequence	337
Comparison	253
Cause and Effect	65

Table 6
The Number of Wilson School Pupils Posttested
In Each Reading Comprehension Skill Area by Reading Level
from October 1978 -February 1979

Reading Level	Literal Reading Comprehension Skill				
	Detail	Main Idea	Sequence	Comparison	Cause & Effect
Readiness	0	0	7	0	0
Pre primer	17	8	15	3	2
Primer	14	64	54	23	4
Grade 1	15	50	52	48	11
Grade 2	16	71	65	59	12
Grade 3	58	100	66	61	36
Grade 4	8	37	45	26	0
Grade 5	20	20	20	20	0
Grade 6	0	13	13	13	0

Performance analyses show the per cent of pupils who met the criterion of 80% correct on the posttests (tests of 5 items for level readiness-grade 3, and 10 items for higher reading levels) for each skill area. These are: Detail, 90%; Main Idea, 69%; Sequence 76%; Cause and Effect, 67%; and Comparison, 65%.

A less data oriented but still pupil oriented effect is the existence of a reading comprehension skills program which is consistent across grades and reading levels.

Adoption: College Faculty

The last population to be discussed in the adoption area is the college faculty. Their role as "feedback professors" included a variety of duties which were described earlier. The effect of this participation on the college faculty has been to develop a cadre of professors experienced in assisting a total school in pinpointing areas for inservice training and then working with the school staff to reach inservice goals. An important element was the level of trust which developed between the college instructors and the Wilson staff.

Adaptation

Adaptation may be seen as a further step toward institutionalization. The outcomes of adaptation are more anecdotal in nature than in the adoption area. Most of them are reflected in decisions made by permanent system personnel which show change away from the "plan" implemented, and occur after the "plan".

After the pretest was administered in October 1978, it was found that first graders could comprehend material with little difficulty when it was read to them. However, they could not do so on their own at the readiness level. The teaching staff decided to concentrate on word attack skills while reinforcing comprehension wherever possible.

Skill areas where materials were still lacking have been identified. These areas tend to be at the lower reading levels. This problem has resulted in the workshops planned and run by the Wilson School staff. These workshops were discussed earlier.

In January 1979, some of the teachers decided to reteach a weak skill rather than introduce a new one. This adaptation decision was based on the needs of the students. About the same time some of the teachers realized that the reading level of the tests was generally lower than that of the

teacher-developed instructional materials. Thus, the teachers started compensating by either testing at a higher level or teaching with lower level materials, depending on their students.

In February 1979, several important concerns appeared. Teachers suggested a change in the length of the teaching cycle. Some wished it to be longer, others shorter. The teachers working with young children on readiness and preprimer levels recommended one-week cycles, while those teachers working with older children indicated that two weeks was not long enough.

A majority of the teachers indicated that changes were needed in the record keeping system. A revision of this has been built into the continuation plan.

Continuation, i.e., phasing out dependency on the temporary system of Teacher Corps, also has become an adaptation issue. The first step was to identify what aspects of the reading comprehension skills program the school wished to maintain, and how it could perform the necessary functions needed to maintain the program. The Wilson School staff has been organized to make future decisions regarding the comprehension skills program.

An adaptation at the administrative level was planned. The plan calls for the principal to observe the teachers using a skills check list based on the inservice training provided by the project. This should be an important factor in maintaining the institutionalization of the educational change.

Another important indicator of adaptation was teachers' citing their use of the reading comprehension skills during basal reading time as well as during the skills time blocks. This use of the skills with the basal materials was the strategy which the Teacher Corps staff originally suggested for internalization, rather than the strategy of developing instructional materials chosen by the Wilson School teachers.

Conclusions

Culling through the Trenton Teacher Corps experience, five ingredients may be identified which aided the delivery of inservice education at Wilson Elementary School. First, all levels of personnel in the school were involved, some to a greater degree than others. Second, the inservice plans were designed to meet the needs as they were perceived and defined by the staff at Wilson School. There was a high level of self-determination and involvement in the development of the content and in the delivery of the in-

service. This promoted a feeling of "ownership" toward the effort of establishing instruction in reading comprehension skills. Teacher Corps provided guidance and input but final decisions concerning inservice were made by the school staff.

The third ingredient was time. Time was necessary (a) to build trust among the school staff and college staff, and (b) to plan and develop the educational change. Both required release time for the school staff. The fourth item was money. Money for acquiring instructional materials selected by the Wilson staff appeared to give teachers proof that the administration was supporting their effort to improve reading comprehension skills instruction. The fifth and last ingredient was the flexibility of the permanent and temporary systems to permit adaptation while working toward the inservice goal of improving instruction in the reading comprehension skills.

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8 Alterations and Iterations or We Did it Better the Second Time

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Introduction

Change is a concept that is difficult to define; it is a process that is difficult to manage, yet a reality that we have with us at all times. We change our clothes, we change our location, we change our occupations, we change the way we behave, and do all of these with little forethought or preplanning. It is not unusual, therefore, that when we start to change an institution, we often address it with the same casualness that we address the other instances of change in our lives. However, anyone who has been involved in institutionalizing change or adapting research recognizes that a casual approach to institutional change is not the answer.

Florida State University and Florida A & M University attempted to maximize the benefits of the change process by applying four basic principles to the practical management of human problems and institutional change. The four principles while conceptually and practically implicit, are not always obvious when individuals are professionally or emotionally involved in the process of change.

Simply stated, the first principle provides for a clear *statement of the perceived problem* in concrete terms. By using an overall change model entitled, "The Florida Assessment and Diffusion System" (FADS) the planning task force was able to translate vaguely stated needs and goals into concrete terms. In addition, the FADS process facilitated the crucial

separation of genuine (underlying) problems from surface problems or symptoms.

The second principle acknowledged the necessity of an *intensive investigation of the programs and practices designed to achieve site goals* and reduce needs (based on a discrepancy model) within the project site. This was pursued by project staff and school personnel before and during the time of entry. The FADS process aided the Teacher Corps staff in discerning what programmatic/innovative changes had worked in the site school, those that had not, and allowed an estimate of the chances that similar program changes would work in a new Teacher Corps temporary system.

The third principle made an implicit demand for *review of the already defined goals and objectives.* It was facilitated by entry and temporary systems concepts as they applied to change in a permanent system. The staff took the position that the problem-solver who subscribes to the "iceberg" hypothesis of human problems and sets goals accordingly is likely to create a negative "Rosenthal effect"* as a result of which the way toward the solution will be long, arduous and even dangerous. By contrast, experience has indicated that setting of concrete, reachable goals produces a positive "Rosenthal effect."

The fourth principle was that the *entry process is crucial to the success of a change agent.* Entry was conceptualized as a two-stage process pre-entry, including "getting a foot in the door" through the announcement of a contract award by National Teacher Corps, and entry, from the announcement of the award until the first day that pupils reported to school in the Fall of the year.

All four principles were aimed at the implementation of change in such a way that it would be regarded as desirable, meaningful, and achievable. In the implementation of change, the target of change was the attempted solution. For example, improving the math achievement of students was translated into a program solution which called for the application of Piagetian developmental theories to math instruction.

The tentative program solution was translated into the language of the audience for which it was designed. Only then could efforts be concentrated upon securing audience receptivity and endorsement of the project. As one might suspect, the entry process pervaded implementation of the first three principles and is thus typologically distinguishable from them.

*Rosenthal effect, simply stated, is that individuals live up - or down - to their superiors' expectations of them. High expectations breed high achievement and low expectations breed low achievement.

The diagram below may assist the reader in visualizing the four institutional change principles as they were applied in Cycles 10 and 12.

Figure 10
Temporary Systems Processes

Pre-entry	Review of goals and objectives Assessment of status relative to goals and objectives (needs assessment)
	Investigation of programs and practices designed to achieve goals and objectives
	Review of alternative programs and practices available (review of adaptable research findings) Statement of perceived problem and possible solutions
Entry	Implementation of selected solutions
	Assessment of progress (formative evaluation)
	Modifications if and as needed

Project Description

Before the reader is introduced to the needs identified by teachers and administrators in Cycles 10 and 12, a description of the communities of the two site schools will enable the reader to understand the need for the utilization of selected research bases related to the thrusts of the two cycles.

Pineview (12th Cycle) and Riley (10th Cycle) Elementary Schools each house approximately 400 students. Pineview is constituted of 60% black students, 38% white students, and 2% other minorities; Riley, was approximately the same. The communities of both schools included a population ranging from high to low income with approximately 50% in the low income range. Many of the children are from homes with only one parent and some live in foster homes.

Statement of Need

In 1972, legislation enacted in Florida mandated the establishment of Teacher Education Centers (TEC) throughout the state. TEC's operate within a specified district where universities provide inservice teacher training and preservice teachers engage in observation and other field experiences. Pineview was designated as one of six site schools in the

FAMU/FSU-Leon TEC. The legal mandates of the TEC, which in many respects parallel with those of Teacher Corps, suggest a natural combination of the two efforts. Leon County, with a teaching staff of 1,291, was large enough to test adequately the change model previously mentioned; yet it was small enough to allow observation of individual or group movement toward achieving institutional and personal goals.

For many years prior to Teacher Corps entry, students in the communities of Pineview and Riley demonstrated slow progress in math and reading as compared to national, state, and local norms. This finding was supported by results of the California Test of Basic Skills and teacher progress report data. Instructional priorities selected by faculties at both schools indicated a need for improved programs and practices in the following areas, as well as a need to improve the slow student progress in math and reading.

The Major Instructional Priorities Selected by Site-School Elementary Teachers

Priority	Target Group	Goal
1.	Teachers	To diagnose student learning accurately
2.	Teachers	To acquire prescriptive teaching methods related to diagnosed student needs
3.	Teachers	To learn better classroom management techniques
4.	Pupils	To increase pupil reading achievement
5.	Pupils	To improve pupils' communication skills (conversation, grammar, and listening)
6.	Pupils	To increase basic arithmetic achievement
7.	Teachers	To increase teachers' awareness of differences among pupils' achievement levels (diagnosis of mastery of identified skills)
8.	Teachers	To improve teachers' ability to provide programs in reading and math that are related to individuals' differential reading and math levels—grouping and needs

Community/parent response indicated that the school's major programmatic weaknesses gave rise to a need for improved instruction in reading, language, and mathematics and the need for smaller pupil-teacher ratios.

Research Bases (FADS, Temporary Systems, Entry)

How did the project staff go about assessing the instructional priorites of teachers and the community members such as those just described? Three different systems/processes were used.

Florida Assessment and Diffusion System

The Florida Assessment and Diffusion System was one research process used in helping an institution to change. That process included the six criteria listed. The following diagram (Figure 11) specifies the steps in the FADS model. Each phase in the diagram has a series of "guiding" questions helping to focus responses toward the needs identified.

The success of a change process is dependent on the degree to which the process:

a. utilizes classroom teachers' opinions as a primary and respectable source of information;
b. makes clear to teachers the relationship between teacher requests and delivery of inservice training;
c. identifies and addresses needs of the site school, as well as district-wide, through the inservice program;
d. includes assessment of several sources reflecting a variety of perspectives and skills;
e. has enough flexibility and interdependence among model activities for decision-makers to decide how much and what types of data should be collected in terms of available sources; and,
f. encompasses efforts to predict the future needs of the school district and its teachers.

Extensive needs assessments were carried out; the perceived and identified needs were verified, alternative strategies and treatments were studied and piloted. Then school-wide "solutions" were selected for each problem area, and the various stages of implementation and diffusion were put in operation (Steps 8 through 20 in Figure 11). Prior to implementation of FADS, teachers and parents considered skill development in the math area to be primarily cognitive, while development in behavior as affectively oriented.

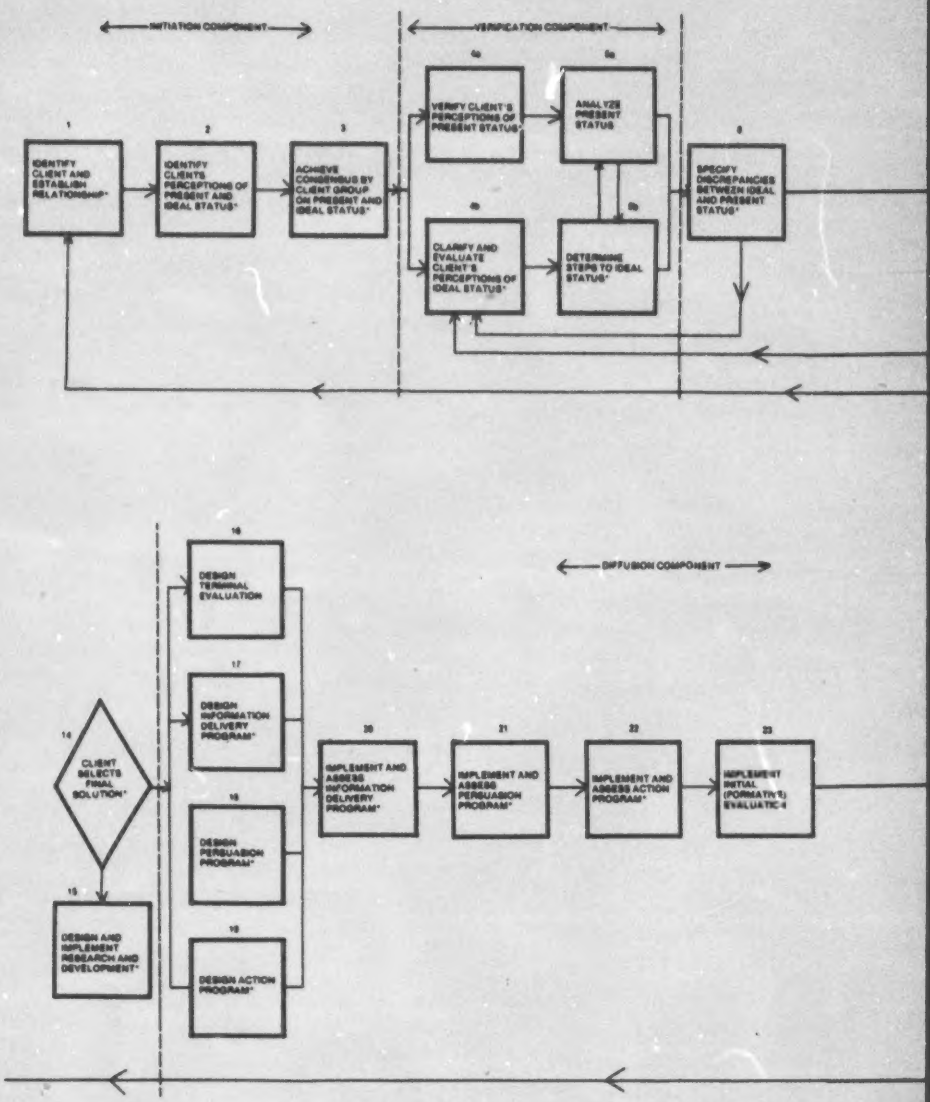
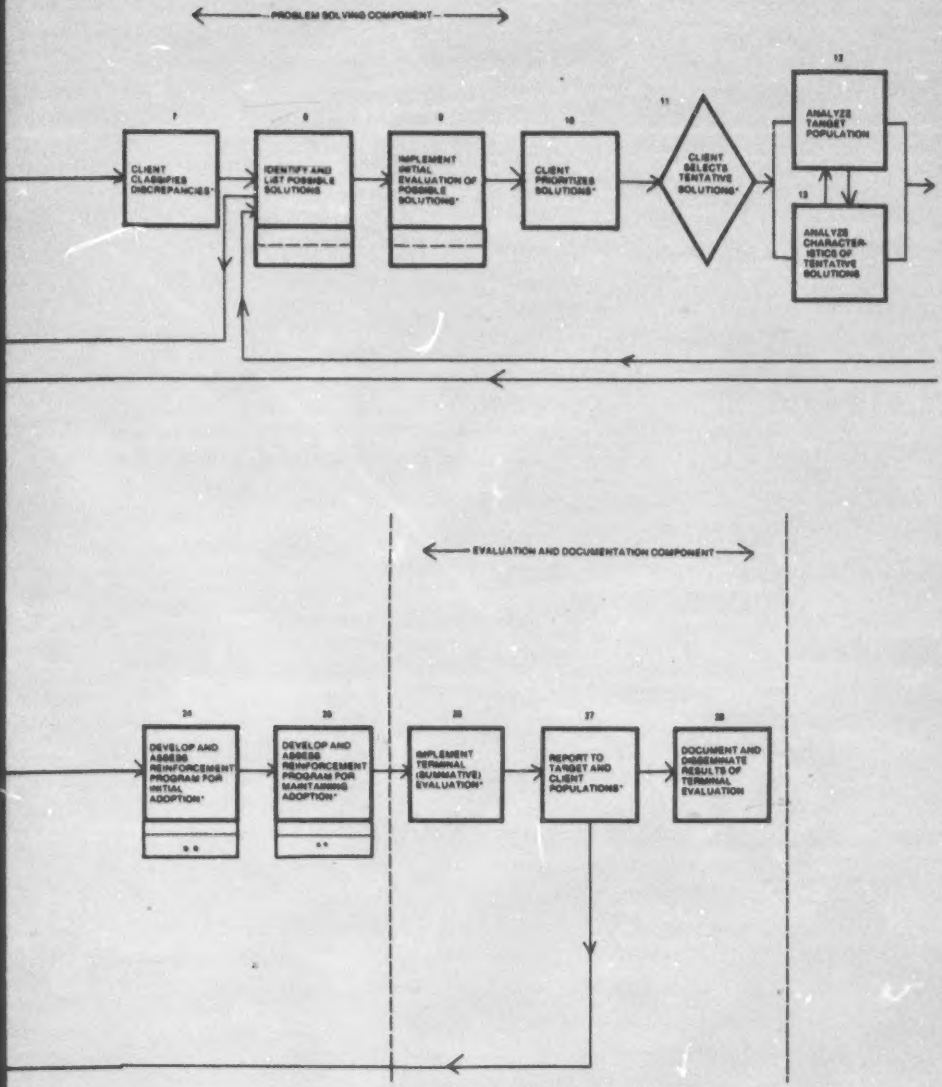


FIGURE 11
ASSESSMENT AND DIFFUSION MODEL



NOTE.—* Some client/agent interaction is demanded as part of the process of implementing this element. See the textual material for the precise nature of those interactions.

NOTE.—** Some agent/target population interaction is recommended as part of the process of implementing this element. See the textual material for the precise nature of those interactions.

While implementing the FADS process, an interesting phenomenon occurred. Two task forces, made up of teachers, parents, interns, university professors, and district administrators working as a study group, were pursuing two quite divergent problem areas: mathematics skill development and special learning/behavior problems in the regular classroom. When they arrived at step 14, Client Selects (Figure 11), in their deliberation, they each concluded, independently, that an instructional/curricular approach which integrated both cognitive and affective development concepts would be the most appropriate solution.

It soon became obvious, however, that within the two-year funding period of the 10th Cycle Teacher Corps project it would be impossible to do more than produce a usable pilot of the cognitive/affective ideas ready for adoption in the two areas just mentioned. Furthermore, teachers wanted to return to the substantive body of research and theory in order to determine whether curricular, instructional, and/or training implication which combined the cognitive and affective domains in reading and language arts could be found. As a result, the 12th Cycle proposal development team negotiated with Leon County and the Teacher Education Center for continued support of Riley inservice and community activities initiated during the 10th Cycle. The team then negotiated with the Pineview staff and community to pursue a 12th Cycle project specifically to address the systematic adoption of research findings related to the cognitive and affective development of children in three areas:

1. mathematics
2. reading/language acquisition
3. learning/behavior problems

The final decision to move to Pineview, a new 12th Cycle site, was based largely upon the need for a setting where the focus of the new project could be limited to a cognitive/affective adaptation. Some of the activities undertaken during the 12th Cycle continued to involve Riley teachers as members of the funded school district and participants in the Leon TEC. The 12th Cycle project was built upon the knowledge, results, and materials already developed and piloted at Riley.

Although consensus on the priority needs in the new site location was predetermined, it was no startling recognition that implementing innovative programs required competence in developing, introducing, and managing those innovative efforts. Thus, the application of more research in an educational instrument called temporary systems theory was discussed for use at Pineview.

Temporary Systems: Planning Phase

Temporary systems concepts, (Gant, South, and Hansen, 1977), imply knowledge about social systems and organizational behavior applied to the planning and conducting of short term educational programs and project management. Although the length of this paper does not allow for an indepth discussion of temporary systems concepts, a brief description as they were applied to the operations of Cycle 12 will give the reader concrete exemplars of the benefits, as perceived by project staff, of theory in action.

The life cycle of a temporary system, a Teacher Corps project in this case, consists of five major phases, each of which has different tasks and may involve different staff members. The five major phases include: planning, building, operating, closing, and following up a temporary system. Planning and operating, two important phases in the typology of temporary systems, include pre-planning, securing resources, selecting staff members, phasing out, providing for re-entry into permanent systems, and evaluating.

During the planning phase of temporary systems, the task force made a selection of thrusts for learning. Outcomes, in general terms,were identified, as well as thematic emphases of program components.

The thrusts for Teacher Corps at Pineview were focused upon teacher acquisition of:

1. the skills necessary to promote pupil cognitive/ affective growth in the areas of mathematics, reading and language arts, and learning/behavior; and,
2. the diagnostic/prescriptive skills necessary to promote pupil progress through the preoperational and concrete operational developmental stages and facilitate transition between the two stages.

It was expected that this primary goal would be accomplished through inservice program development and retraining in strategies and techniques within the reading, math, and learning behavioral areas. Selected student outcomes resulting from these staff development efforts were predicted:

1. pupil achievement will improve as measured by performance on the CTBS in the areas of mathematics, reading, and language arts; and,

2. pupil self-concepts, school affiliation, self-acceptance, self-security, social maturity, social confidence, teacher affiliation, and peer affiliation will improve as measured by responses on the Self Observation Scale (SOS).

The needs assessment data indicated that the inservice training should be composed of three substantive components: reading/language, mathematics, and learning/behavior. Furthermore, the community profile revealed a diverse cultural population which warranted the inclusion of multicultural awareness into every aspect of inservice activity.

The Building Phase

The development of a program implementation strategy, both in general and in detail as required in temporary systems theory, allowed for improvisation as people took ownership of the program components in the building phase. The program components began to take shape using the ingenuity of the Teacher Corps staff, members of the site school, and community.

During the operating phases, a daily assessment of all Teacher Corps staff contacts, including purpose of contact, was made by the site coordinator. The Teacher Corps staff was receptive to teacher input for need to change major as well as minor portions of the program design and/or goals in order to meet teacher needs. Cycle 12 was engaged in transferring knowledge and plans for providing internal support systems including resources flow. Temporary systems attempt to anticipate unplanned outcomes (a breakthrough reading program and upcoming county programmatic mandates) so that teachers might be better able to apply the newly installed programs and practices to these contents.

Cycle 12 chose to use temporary systems research because it offered a way to deal with organizational rigidities. Through temporary systems theory, new structures and norms were substituted for existing ones and tried out to determine their value. An egalitarian norm was tried out by the learning/behavior resource teacher. She was requested to implement a classroom meeting model as a way of working on deviant behavior. Two teachers were already using a process very similar to the model other teachers desired to implement. The resource teacher engaged the expertise of the two teachers using the procedures for demonstration and instruction in the model, thus saying to those two teachers and the audience, "you

have expert power and credibility among Teacher Corps staff and school personnel."

Power and status differentials were minimized to facilitate new patterns of communication and to locate areas of needed change. Win/lose orientations in conflict situations were approached as problems to be solved. Rather than engaging in head-on conflicts with the administrators, weekly meetings were held to discuss operational problems, thereby encouraging a problem solving task force as opposed to individual vs. individual conflict resolution. Finally, by varying the principles used to organize and to operate, corresponding principles in the permanent system became more visible. As an example, a school-based resource teacher suggested to a group of teachers that they design a new social studies program that met the county scope and sequence requirements. The resource teacher suggested that the group of teachers act as a problem-solving unit and develop their own tasks to work on in relationship to the program. The resource teacher varied the organizing principles, by requiring the group of teachers to *develop* what was formerly *assigned* to them. In doing this, their relationships to one another visibly changed.

The nature of temporary systems is closely related to the nature of permanent systems. The problems of the permanent system, in this case, furnished the design challenges of the temporary system. The Teacher Corps staff tried to make the problems in the permanent system visible and soluble.

Entry

Planning for entry into a new school site is more critical to the success of the project than any of the programs or practices to be implemented. As a temporary system entering a permanent system, many challenges are faced: sufficient planning, acquaintanceship, role definitions, establishing working relationships, establishing feedback mechanisms for defining, examining, and reassessing temporary systems goals in light of the permanent system's goals.

Teachers are accustomed to having non-teaching support personnel in their work environment (e.g., guidance counselors, administrators, curriculum specialists); however, the introduction of "outsiders" into a school building may be (and often is) perceived as a threat—especially when such personnel are seen as temporary interveners whose aim may be to cause teachers to alter their customary teaching styles. Change agents,

then, are faced with establishing a non-threatening, cooperative/supportive relationship with individuals who may not desire to do so.

> *Entry of any change agent into a school system constitutes, initially at least, an additional threat to the integrity of the system. Though there is almost always such heightened tension when change agents enter client systems, the problem may be especially acute in most public schools* (Watson, 1967).

Entry, defined as a process by which outside change agents gain acceptance into an existing system, must include at least three outcomes when the existing system is a public school:

1. Teachers are aware (or are made aware) of, and internalize, the need for change.
2. Teacher perceptions and attitudes are impacted to the point that they foster personal interest and a willingness to alter fixed patterns of instructional behavior.
3. Teachers support change agents' efforts to implement programs of change.

In securing approval to enter Riley Elementary School, the 10th Cycle Teacher Corps project staff sought the support of school district administrators and the building principal, as well as university administrators. Once these individuals had indicated their support for the project, teachers were informed about the impending project. As one might expect, their reaction was immediate and ranged from cool and curious to openly hostile. Through a series of meetings and "information sharing" sessions, teachers began to become convinced of the worth of the project and eventually agreed to its location at Riley. By the end of the cycle, teachers had become very proud to have been chosen as the site school, except for two individuals who resisted any involvement from the outset. Nonetheless, some valuable lessons were learned from this experience. In seeking to initiate negotiations with Pineview faculty members, teachers were informed several months in advance of the proposal submission that Pineview was being considered as the site school. Advantages and disadvantages of such a selection were thoroughly discussed; benefits expected to accrue to teachers were not presented without acknowledging the necessity for additional demands on their time and energy. Pineview personnel were invited to interact with Riley personnel to get a firsthand account of how the project might be expected to affect the entire school.

Riley personnel, by this time, were almost universally positive, effective spokespersons for the 10th Cycle project. Some, in fact, expressed strong feelings that Riley should be the site school inasmuch as the 12th Cycle project was to build upon the accomplishments of the 10th Cycle project. Such comments served to convince the Pineview staff that their participation would be a very good thing, indeed. Thus, the initiation phase of entry was concluded when Pineview agreed to be written into the proposal as the site school.

Preparation of the proposal could have been accomplished with little direct involvement of Pineview faculty members; however, a committee of teachers was invited to participate in proposal development. These individuals served to communicate school needs and interests to the proposal writers; to keep the school staff abreast of the proposal development status and related activities; to understand more thoroughly the 10th Cycle project and to relate these understandings to the Pineview faculty; and to participate in decision-making relative to the proposed program, staff, and processes. The proposal writers sought questions from the Pineview faculty concerning the project, as well as concerns about various aspects of the project which might either have implications for the proposal or which, by being addressed with the faculty, might alleviate their concerns and generate additional acceptance/support for the project.

During the "waiting period" (between proposal submission and announcement of its funding), lines of communication were kept open among the two IHE's, the school district, and Pineview. Although project-specific planning could not occur formally, many of the discussions which took place were project-oriented. By avoiding the image of "using teachers as needed, putting them aside until needed again, then using them some more," the staff established credibility as being genuinely interested in Pineview and its personnel as more than a vehicle to secure a grant.

Once funding was announced, Pineview teachers were invited to participate in constructing job descriptions for staff members who would work with them for the next two years. When the positions were officially declared vacant they also participated in selecting and interviewing candidates to fill the positions. This sort of involvement in decision -making about matters which would be of direct import to teachers added further weight to their conviction that they were to play an important, identifiable, and worthwhile role in the 12th Cycle project.

During the summer in which the project began, teachers were minimally involved in any project activities; two, however, attended the National Teacher Corps Conference and a few others agreed to participate

in orientation of the four interns to Pineview. All teachers agreed to report to work three days in advance of the district-wide preschool planning conferences. During these three days, as well as during the three days of district-wide planning, Pineview teachers were further familiarized with the goals, objectives, structure, and general processes to be encompassed by the project. Time was scheduled for collection of baseline data about teachers as part of the advance planning, thus relieving the teachers of having to find time at home or after the day's activities to respond to the instruments used. One very important aspect of the schedule was that teachers were given several intervals of "free" planning time in which they could organize their classrooms, work with records, or engage in other activities to facilitate the opening day of school for children. Acknowledging their desire for time to do some of the things they wanted specifically for themselves and their classes (rather than sitting in structured meetings all day) further reinforced their perception of Teacher Corps as a genuinely positively concerned effort in which they were *important.* In addition, the participation of non-Pineview project staff members allowed the teachers to become acquainted with persons they might see only occasionally, so that these "outsiders" would be seen thenceforth as facilitators rather than intruders.

Although the foregoing description dwelt upon entry into the school district and the site school, the entry process was utilized in the community as well. Meetings with parent groups were held to acquaint them with the nature of Teacher Corps and the possibility that Pineview would be a site school. Additional resources which would become available (if the proposal were funded) were explained and assurance was given that such resources would be utilized only with the advice and consent of the Community Council. One parent attended the National Teacher Corps Conference during the first summer of the project. Suffice it to say at this point that many of the processes used with teachers were adapted for use with community members.

The advance planning workshop concluded the formal entry process of the 12th Cycle project as a whole into Pineview. As more and more personnel became involved (e.g., IHE faculty members who were not solely Teacher Corps staff members), another sort of entry had to be addressed; however, such endeavors are beyond the scope of this paper. Some of the documented findings concerning entry are summarized in the following paragraphs.

Mills (1978) used the ethnographic method to document and analyze the entry process. Her findings, paraphrased below, have clear implica-

tions for outside change agents entering a permanent system.

- *The success of a project's entry is inversely related to teachers' perceptions of how their established behavior patterns will be disrupted.* Predicted benefits of a project are secondary to predictions of changes in classroom habits.
- *The success of a project's entry is directly related to teachers' perceptions of the extent of their knowledge about project history (development) and its modus operandi.* If teachers believe they understand how the project came about and how it will work, they are more likely to accept it.
- *The success of a project's entry is directly related to teachers' perceptions of the rewards to be generated by the project.* As teachers perceived they would become more skilled, acquire more teacher materials, and their students would display higher achievement, they became more receptive to having the project located in their school.
- *The success of a project's entry is directly related to teachers' perceptions of the principal's having a positive position on school-project related issues.* If a principal is seen as a facilitator of teachers' efforts to comply with project demands as well as school responsibilities, teachers will more heartily endorse the project.
- *The success of a project's entry is directly related to teachers' perceptions of the project as being respectful of their attitudes and needs.* Teachers need to feel a sense of instrinsic worth and have it endorsed by outside change agents.
- *The success of a project's entry is directly related to teachers' perceptions that their informal group members feel positive about the project.* The bandwagon philosophy is alive and well in Teacher Corps.
- *The success of a project's entry is directly related to the extent to which the project is predicted to operate within the school's norms.* If honest efforts are made to minimize disruption of routines, the members of the permanent system are less likely to reject or resent an outside change agent.
- *The success of a project's entry is directly related to the extent to which the project is aware of and attends to cultural differences between the project staff and school inhabitants.* Acknowledgment and acceptance of such differences in a nonjudgmental context will pave the way for effective interaction.

Delivery Systems

It was not the purpose of the project to design a program that specifically adapted the philosophy of Jean Piaget into the classroom practices. Rather, it was our aim to use some of the foundational concepts of his developmental theory in a way that would improve the cognitive and affective performance of elementary aged children, as well as the approach to instruction of their teachers. The concepts of experience, direct involvement, developmental sequence or maturation were all major considerations of the program that did evolve. These concepts were fundamental to the learning/behavior, reading/language arts, and math programs; specific examples of how these concepts were operationalized into training and demonstration efforts will be explained in the context of the following sections.

School-Based Teacher Educators

One of the primary delivery systems of the project was the School-Based Teacher Educator (SBTE). These educators were specialists in their respective fields. They spent 20 hours per week at the site school or at other schools in the county working with classroom teachers, curriculum coordinators, principals, educational specialists. They studied for design and implementation of new programs that support developmental theory, and adapting existing programs to be more responsive to the individual needs of children. The programs and practice change efforts of the math, learning/behavior, reading/ language arts SBTEs were guided by five constants.

1. *Cooperative Planning:* Before the first year of operation at the site school, inservice needs assessment, community needs assessment, and a student "self-concept" needs assessment were performed. The data gathered prior to the project's entry at the site school in the Fall of 1977 were shared with the staff and, as a group, the Teacher Corps staff and the site faculty developed and re-developed a set of immediate inservice training objectives and a tentative and varied list of programs to meet those objectives. Then each SBTE met individually with several different faculty groups, e.g., the upper and lower elementary teachers, teachers at each grade level, or teachers interested in entering the master's program, to define more specific inservice needs and wants. This process was repeated at the beginning of the second year of operation

in Summer, 1978. It should be noted that the goals and programs were recommendations for inservice, not established programs. Goals were added as each SBTE interacted with the teaching faculty; new programs were added as the teacher faculty became more aware of and comfortable with new programmatic options. This leads to the second constant.

2. *Responsiveness to Needs:* Though we tried to help the site teaching staff identify the most critical needs (which were not always the most obvious), in order to develop a well-organized and coordinated teacher education plan for the school year, it became obvious two years in a row that flexibility in program development was equally as important as organization. During the Fall of the first year of the 12th Cycle project, the State of Florida initiated the Competency Test for third, fifth, and eighth graders, as well as the Functional Literacy Test for eleventh graders. One of the unexpected tasks of the SBTEs was to help the site faculty prepare students for this new test—its content, as well as its administration.

   When the results of the test were delivered to the school just prior to Christmas, the SBTEs worked with site faculty to develop a format which explained the confusing test results to parents. In addition, the SBTEs worked with teachers throughout the county to build a skills development program to remediate the deficient areas in test performance.

   During the second year of operation, the county selected a new reading series for elementary schools, one which did not lend itself to the developmental program that had been initiated by the reading/language arts SBTE and the site faculty. Not only did the faculty want assistance in use of the new series, but they also needed help in salvaging a developmental reading program that no longer had a reading series to support it.

3. *Regularity and Responsiveness in Scheduling:* It was important to the site staff that the SBTEs establish a schedule for attendance at the site school and then for them to stick to it. The teachers found it comforting to know that when they tried and failed at an innovative plan, for reading or math on Tuesday, the resource teacher would be there to help pick up the pieces of the lesson and present it successfully upon request. More importantly, the consistency in attendance established a feeling of cooperative ownership of

program between the school and the project staff.

4. *Willingness to Participate:* Teachers have often harbored negative feelings toward university professionals who visit the schools, look around, and make recommendations for improvements in classroom instruction or management that these professionals have not tried to implement in a classroom. To counteract bad experiences of this type, and to model a new set of teaching behaviors, the three SBTEs were individuals who not only had teaching experience at the elementary level, but who were willing and able to demonstrate the practices they preached by working with children in the classrooms. This was essential during the first year of operation when such new programs as "education that is multicultural," diagnosis and prescription in math and reading, were operationalized in classrooms. However, there is a counterpoint to be made here: willingness of an auxiliary teacher to demonstrate and to participate in the regular teacher's classroom instruction may be construed by some teachers as an opportunity for someone else to do their jobs, i.e., passive exploitation. As in any teacher/learner dyad, there is a balance between active and passive participation that must be maintained if the relationship is to remain nurturing for both. This was a lesson learned from 10th Cycle experiences.
5. *Reality Based:* For every lofty goal for changes in programs and practices, there was at least one deflating reality to undermine its accomplishment. The math SBTE found it difficult to help teachers implement a developmental math program when there were insufficient materials, printed or manipulative, to support the activities; the reading/language arts SBTE found it difficult to implement a reading program utilizing diagnostic and prescriptive techniques for individualizing reading when the local county called for teaching the children, all the children, the skills they needed to pass the state's competency test. So program changes were developed and implemented that were ameliorative but within the boundaries of reality's constraints.

Master's Degree Program

A second major delivery system of the Teacher Corps project was the M.Ed. degree program. For innumerable years, the two Teacher Corps

cooperating universities, Florida State University and Florida A & M University, had offered M.Ed. degrees. Participation in the program was rather impersonal: a student enrolled, met the degree requirements, took exams, and graduated, frequently without having any more contact with advisors than at the usual pre-quarter form signing ceremonies. Changes in the programs/course offerings came slowly, and often only after new state mandates for certification requirements. When, during 10th Cycle, Teacher Corps became actively involved with an alternative degree program, changes were guided by the same five constants previously listed.

1. *Cooperative Planning:* Students selected advisors at the beginning of their programs, and together the student and advisor considered the most beneficial courses and degree options for the student. Cooperative planning was also done at the university level, with the core of most-frequently-involved faculty discussing their course content, their and their students' in-field experiences, and recent legislation, techniques, programs that would influence course offerings in the future.
2. *Responsiveness to Needs:* One of the most frequent complaints of the master's degree students was that university faculty are unaware of today's realities of the classroom and of the students. What are the most successful methods for teaching media-wise children? What does a teacher do about non-standard patterns of language in the classroom? Why isn't "Black History Week" a prime example of Education that is Multicultural? Teachers complained that professors often told them what not to do without helping them develop the knowledge and skills to redesign their instruction so it would meet student needs. The new course offerings and the additional faculty recommended after Teacher Corps entry into the degree program attempted to address some of the most pressing concerns of the teachers.
3. *Regularity and Responsiveness in Scheduling:* This was, perhaps, a less urgent principle than the others when planning the M.Ed. program. However, allowing for flexible scheduling in time and place of class meetings, as selected by a majority vote of class membership, was an important issue to the teachers.
4. *Willingness to Participate:* As the direction of the M.Ed. program shifted from university-centered to school-centered, teachers became more willing to ask university faculty to observe and/or participate in their classroom activites. And, as the university

faculty participating in the degree program expanded, "professors" became teachers in reality.

5. *Reality Based:* The course work offered through the M.Ed. program did not eliminate theoretical or conceptual foundations from course content in an effort to make the courses more reality-based. Rather, courses were expanded to include reality issues and exemplars of theory, e.g., in the Tests and Measurements course, the State's new competency testing program was examined in light of standard course concepts.

These two primary delivery systems attempted to change existing practices and programs by impacting three main areas affecting instruction: skills and knowledge, materials and curriculum, and support systems. Because the project wanted to adapt the foundations of developmental theory into classroom practice, it seemed most reasonable and practical for the SBTEs to model these behaviors when dealing with the site teachers and pupils. The skills essential to implementing a developmental approach were demonstrated in the classroom prior to discussion of the theory underlying that approach. From our previous inservice training experience, we learned that teachers are more willing to change their instructional strategies if they see the value or success of a new strategy with their students, but not because someone describes a theory or body of research to them and says it is valuable.

A pattern of SBTE involvement with teachers in the classroom followed this sequence:

- teacher identified problem
- SBTE and teacher discussed problem and defined what teacher had done and changes she/he wanted to accomplish
- SBTE volunteered to observe and/or work with child in classroom
- teacher observed SBTE with child in classroom
- teacher and SBTE discussed what was done
- SBTE returned frequently to work with child
- teacher and SBTE discussed theoretical foundations of work done in non-theoretical terms
- SBTE asked if teacher and peers with similar problems would be interested in learning more about the skills/techniques observed
- if teacher agreed, workshop designed and presented
- SBTE then worked in classrooms of participating teachers
- SBTE observed teacher trying new techniques with students

- follow-up workshop to discuss uncertainties, other features of techniques
- SBTE observed teacher implementing techniques with students
- SBTE worked with participating teachers who will teach techniques to other teachers

In this way the principles of involvement (both student and teacher-as-student), individualization, via diagnosis of child's current level of functioning and prescriptive techniques to get child from here to there, theory following (or at least co-existing with) practice, and, a developmental, not catastrophic, approach to change were implemented.

The skills and knowledge basis for change was enlarged by the master's degree coursework which many of the county's teachers were taking. Courses in language arts/reading, social studies, math, sociology and philosophy of education addressed the issue of "who is the child we see in school?" Course content, more than ever, studied learning in more than the educational environment; learning in the sociocultural environment of the child's non-academic world was also studied. And problems of integrating these two sets of learning patterns to maximize the potential of each were discussed.

The need to make changes in materials use and design were obvious. Site school teachers were almost overwhelmed by the paucity of commercially produced materials designed to enhance a developmental approach; teachers (and the project money managers) were almost overwhelmed by the cost of those commercial materials which were available. Hence, a large amount of inservice training time in workshops, summer institutes, or degree courses was devoted to evaluation and adaptation of printed materials. Teachers were instructed on how to coordinate use of the available printed materials, how to supplement the printed materials with teacher-made materials, printed or manipulative, and how to design inexpensive, appealing, and educationally valuable materials which were responsive to the child's developmental level.

The third area of impact was in the use of community support systems. The community coordinator, together with the teaching staff and the county volunteer program, developed a set of guidelines for utilizing parents, paid aides, retired community persons as instructional assistants in the classroom. Additionally, college students from the two cooperating universities who were sent to the site school to study children in the learning environment as part of a course requirement, were asked and briefly trained to be participating observers instead of passive observers.

The learning/behavior SBTE instituted an on-site student staffing program which coordinated the services of several county-level support service personnel. In the past, when a child with obvious learning or behavioral problems was seen by one of the county diagnostic specialists, site staff would have little or no personal contact with these individuals to discuss the diagnostic or prognostic implications of testing or observations. The new staffing program brought together specialists and all site personnel who had routine contact with the child in question for the purpose of designing the best possible educational plan and enlisting the aid of available support services.

There were two long-term campaigns to encourage parent participation in improving academic skills of their children. The bumper sticker campaign was aimed at increasing the amount of at-home reading parents did with their children. The tutorial programs, in reading and math, taught parents how to tutor their children in specific skill areas.

Conclusions

The primary emphasis of the Teacher Corps program at Pineview was that teachers acquire the skills and understanding necessary to promote pupil cognitive and affective growth in the areas of math, reading, language arts, and learning behavior. We learned several lessons from experience with the three models previously described. From FADS we learned the importance of valuing and utilizing the opinions and suggestions of teachers as valid sources of input for program change. From the Temporary Systems theory we learned that it was essential for those who were to be the learners and the recipients of new programs and practices to also be among the planners of those programs for change. From Entry we learned that the less disruptive the project was of school norms, classroom operations, and teachers' perceptions of themselves as professionals, the greater the likelihood of both staff and organizational change within the site school. These were three essential assumptions to which we repeatedly referred over the course of the 12th Cycle. Following is a list of lessons learned as a result of the application of research and programmatic intervention of Cycles 10 and 12.

Lessons Learned

1. The greater the involvement of the permanent systems staff in shaping the form of the temporary system, the greater the commit-

ment of the permanent staff in promoting the success of the temporary system.

2. Authority figures must be seen as facilitating not mandating in the temporary system.
3. Temporary systems staff must be seen as supplementary to, not substitutions for, permanent systems staff members.
4. A fundamental purpose of temporary systems' staff is to facilitate support interaction (e.g., teaming) among permanent systems staff. This is more easily accomplished by doing than by saying.
5. It is essential to define roles, delineate job (role) boundaries and be certain that nonproject staff know who is responsible for what.
6. Persons who are without authority in either the permanent or temporary system are reluctant to assume responsibility beyond the level specified by authority figures.
7. Use of human resources is maximized by a system of referral that encompasses the largest number of agencies available in that community.
8. To insure appropriate use of new resource materials, teachers must be provided with inservice training in the use of such materials.
9. To save time, prevent grief, and maintain cordial working relations, it is essential to develop a feasible documentation plan before the project begins its work.

The reader will note that the lessons learned are related to the various components of the change model. Beyond the model, however, the most important lesson was to reinforce our conviction that effective human relations skills are the sine qua non of any change project. Inasmuch as the change process is focused upon changing people, they must envision the change agents in a positive and supportive role. To project this image honestly will almost guarantee future success.

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9 Research Adaptation at the Forest Hill Elementary School

George Brent
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Mary Arnold
Maria Brent

The Glassboro/Camden 10th Cycle (1975-1977) project focused on improving student learning of basic skills. The project was careful to document the body of research it was using (Brent, 1977), the format in which the research was adapted (Forest Hill Handbooks I-IV, 1977) and the changes in pupil performance (Arnold, 1977; Brent, Arnold, and DuRoss, 1978). Unfortunately, the process of "inservice education through research adaptation" was not sufficiently documented. This paper is an effort to document adequately this process and the lessons we learned. It will plan to discuss how the supportive services provided by Glassboro State College staff and the leadership of the demonstration school principal enabled the accomplishments of the project to be institutionalized within the school and to be disseminated to other schools in New Jersey.

Statement of Need

Camden, New Jersey, has a population of about 100,000. It is located directly east of Philadelphia. The city is one of the most distressed in the nation. Sixty percent of Camden's population is below the poverty level. One recent study ranked it as the seventh poorest city in the country.

In the Camden Public Schools, instruction is given in the elementary schools for grades K-5, in middle schools for grades 6-8, and in high

schools for grades 9-12. There are 21 elementary schools, five middle schools, two high schools, three special education schools and one alternative school. Most schools are within walking distance of students' homes. The problems of the city are reflected in its schools. One estimate is that 74% of the Camden Public School students are not meeting minimum standards in reading and mathematics (Tollerson, 1978).

Research Base

The Glassboro/Camden 10th Cycle Teacher Corps project was a cooperative endeavor between Glassboro State College and the Camden City Public Schools. It was designed to meet the needs of Camden students in general and specifically those of the Forest Hill Elementary School. The Forest Hill needs primarily pertained to deficiencies in arithmetic skills. To meet these needs, the project adapted a measurement system called Precision Teaching. Precision Teaching was first used to improve the learning of arithmetic facts. Then it was expanded to teaching other arithmetic objectives and to reading and spelling.

Precision Teaching Principles

Precision Teaching stresses specific measurement and charting techniques. These techniques allow the classroom teacher to measure pupil learning sensitivity and to predict the course of this learning. In addition, Precision Teaching includes suggestions on specifying behavioral objectives and empirically determining the criterion levels for objectives (Brent, 1977). Precision Teaching may be practically applied in regular and special classrooms.

Teachers familiar with applied behavior analysis are aware that a number of different types of charts are used to display behavioral changes. However, in spite of their differences, these charts all have equally divided intervals on their vertical and horizontal scales. In contrast, Precision Teaching does not use an equal interval chart. Precision Teaching uses a "multiply-divide" chart on which the vertical scale intervals are divided on the basis of ratios. Multiply-divide charts are used because they display relative changes without distortion: equal per cent gains get equal distance on the chart. The advantages of multiply-divide charts are explained by Koenig (1972), Schmid (1954), and Weld (1972).

Another unique feature of Precision Teaching is its use of frequency

of response data. The study of frequency of response is one of Skinner's major contributions to psychology. Precision Teaching retained this measure bacause it has many advantages, including its sensitivity to environmental changes, and its usefulness in dealing with the concept of probability of action—the probability that a performance will be emitted within a specified interval (Kunzelmann, 1970).

In the late 1960s, Precision Teaching encouraged teachers to use a "standard behavior chart", a refinement of the many different multiply-divide charts being used. The chart retained the multiply-divide scale, but standardization of the chart allowed ease of communication within Precision Teaching (Lindsley 1971). In addition, charting conventions became standardized (Pennypacker, Koenig, and Lindsley, 1972).

Precision Teaching monitors weekly learning or "celeration" (the change in the frequency of a performance over a one-week period). It is unique in that it not only measures performance (a single score), but also improvement in performance: learning. Daily student performance is charted on the standard behavior chart and evaluated. Teaching changes are made according to the trends indicated by the charted data. These data-based decisions are the products of Precision Teaching.

The first requirement of Precision Teaching is that an academic or social performance be behaviorally defined. The process of specifying objectives is called "pinpointing" and the objectives pinpointed are functional "movement cycles." An objective that is defined as a movement cycle will be countable, show action, and be repeatable. For example, the writing of digits is a movement cycle which is the source of an objective that may be stated as: "to accelerate writing digits from 10/minute to 100/minute by March 10, 1976." Talking out is a movement cycle which is the source of an objective that may be stated as: "to decelerate talking out from 2/minute to 0/minute by September 15, 1978."

Movement cycles are measured in terms of their frequency (occurrence) per minute. Frequency is used for many reasons. One reason is that frequency is something all performances have in common and therefore can be used as a universal measure. A second is that frequency is sensitive to changes in the environment. A third is that when frequency is charted properly, both speed (frequency) and accuracy (percent) are retained. Fourth, and perhaps most important, is that when frequencies are plotted on a standard chart, they may be summarized with a straight line. This line may be extended to the right in order to project future learning.

Since Precision Teaching uses the standard chart and similar charting conventions, communication is increased between educators. Most impor-

tant, however, are the features of the standard chart that allow accurate data analysis in terms of both frequency (performance) and celeration (learning). By drawing a straight line through the middle of the daily frequencies charted, the data can be summarized and restated in terms of learning characteristics. The direction of this line shows whether the frequency of performance is acclerating, decelerating or remaining the same (Lindsley, 1971).

Celeration refers to the direction of the line. Acceleration (⟋) refers to performances multiplying, and deceleration (⟍) to peformance dividing. As an example, a learner's performance on addition facts (sums to 18) on Monday is 10 correct/minute and a week later, on Monday, the performance is 20 correct/minute. The celeration is described as a times 2 change: 2 times 10/minute is 20/minute. The frequency was multiplied by 2. It increased 100%. Celerations may be measured over many weeks but a period of one week is used as a standard measure to compare changes.

The celeration or learning path is extremely important to the teacher. It provides convenient information for decision-making. The teacher knows a learner's starting performance level, current performance status, and projected learning outcome.

Project Choice of Precision Teaching

Precision Teaching was chosen for the 10th Cycle project because of the college's experiences during the Glassboro/Camden 7th Cycle project. The most useful part of the 7th Cycle was our application of behavioral principles to improve teaching procedures. For the 10th Cycle, we wanted to delve further into the use of behavioral principles and to apply them more systematically to the teaching of basic skills. With this end, Precision Teaching was chosen. It has proved a beneficial choice since it allowed the program implementers to focus on the academic needs that were identified as priorities. Even more importantly, its use resulted in substantial, measurable learning of basic arithmetic, spelling and reading skills.

Research Adaptation Process

Teaching arithmetic facts was the first concern of the project. The adaptation process described below will confine itself to arithmetic examples. Similar large scale efforts were also made with spelling and reading

objectives, but the efforts were similar to the arithmetic and therefore will not be described in this section.

Precision Teaching is a measurement system. Although it theoretically can be used in traditional classroom situations without changing the existing teaching procedures, the staff felt the need for new procedures and materials that lent themselves to a counts-per-minute measurement system. Therefore, in addition to the problem of how to use a new measurement system, the project was faced with developing new teaching procedures and materials.

The materials problem was first met by asking consultants for assistance in finding examples that could be copied. No materials were found that met our specifications. (Several months later materials were located that could have been used.) The project then secured the city's math curriculum objectives and used these as a basis for developing the needed materials.

Since Precision Teaching is a system to measure individualized learning, the project chose to use the following organizational format. For arithmetic facts, a daily ten-minute period was used for practice and testing. Each student practiced on worksheets that pertained to his/her particular objective. The same worksheets were used for daily one-minute timings (tests).

The development of the practice period format, teaching procedures, and worksheets required a major expenditure of time and effort during the project's first year. The initial ideas were field-tested in classrooms during the first months of the project with a few students. When workable ideas emerged, they were shared with all teachers in Forest Hill and tested in many classrooms. These ideas grew steadily as did the number of children in each room involved in Precision Teaching. By January, 1976, all the students were included.

Delivery Systems

The general goal of the inservice plan was to involve teachers immediately in implementing the new techniques and to keep them involved during and after the two-year project. The staff wanted the teachers to incorporate the procedures into their normal repertoires. A description of the plan is offered below.

Phase I: Implementation

Teacher Corps guidelines suggested that training for experienced teachers be field-based. The Glassboro/Camden project had to specifically define this concept to fit the needs of the research adaptation program. The staff felt that the College instructors had to be readily available to the teachers and that these instructors would profit by seeing how Precision Teaching was actually working in the classroom. Therefore it was decided that

- instruction would be given at the demonstration school
- college instructors would be available in the school during the entire school day and follow the public school calendar
- in-class assistance would be provided to the classroom teachers.

Minimally, one formal training session concerning Precision Teaching was scheduled weekly. Sessions included both theory and practice. At the beginning, they were heavily dominated by the college instructor. Eventually, the teachers started to become more actively involved in the sessions since the data from their applications and their suggestions for teaching formats became the focus of the sessions.

The sessions became teacher-led discussions concerning the students' daily performance on arithmetic objectives. Teachers also suggested and/or demonstrated new teaching and classroom management procedures.

The project was fortunate since training time was adjusted as needs indicated. Weekly sessions were often supplemented with small work-group meetings where teachers from the same grade level shared common problems and suggested new ideas. At one point, several days of inservice were obtained from the school system.

Supportive Services and Administrative Leadership

The Teacher Corps project was designed to affect significantly the instructional process in the demonstration school. To make certain that the realities of the school were known to the college staff and that teachers correctly adapted the new strategies, college personnel became actively involved in the schools. Both professor and teacher worked cooperatively toward achieving the project's academic goals for the children. In-class support by college and school personnel was considered extremely important to the

success of this project. The best teaching procedures will not work unless they are applied constantly. Cogan (1973) emphasizes the importance of in-class help. He attributes much of the failure to adapt new programs to a lack of ". . .continuing in-class support."

Support from the Teacher Corps staff included everything from giving a lecture on the theoretical aspects of the research to securing and assembling the shelves needed to hold the practice sheets for the Precision Teaching materials. Support in any form was available to teachers immediately if resources were on hand and within a few days if they had to be created, purchased, borrowed, etc.

Fortunately for the Teacher Corps staff, the principal of the Forest Hill school was a curriculum leader as well as a capable administrator. The principal quickly mastered the research being adapted and became an integral part of the Teacher Corps implementation team. The active cooperation of the principal resulted in the new teaching strategies becoming part of the school's normal repertoire rather than an "extra" dependent on the longevity of external funding. The principal offered curriculum leadership by

- attending each project training session with the teachers
- trying techniques with children and making suggestions based on these field-tests
- encouraging the teachers to participate in discussions by citing their achievements or asking the Teacher Corps staff to involve teachers in demonstrations during the training sessions.

Since the teachers, principal and college staff were learning how to adapt the research together, an atmosphere of support was created.

As an administrator, the principal was also able to help the project by

- involving all teachers in giving classroom demonstrations for visitors
- requiring Precision Teaching to be included in weekly lesson plans as a regular part of the daily program.

Phase II: Dissemination

The project produced video-tapes, slide presentations, handbooks and worksheets. In addition articles were published and numerous presentations and demonstrations were given. These activities were mainly thought of as ways of involving teachers in the research adaptation activities.

A plan for dissemination had been included in the original proposal. This plan was considered an integral part of the inservice program. It was reasoned that teachers who became involved in demonstrating the research adaptation in their classrooms and helping other teachers adopt the procedures would be commited to institutionalizing the research.

The dissemination approach was called the consulting teacher model (McKenzie, 1970). In the consulting teacher model, teachers in the graduate program were released each week for approximately one day in order to consult with other teachers in the system on classroom problems. The consulting teacher was replaced with a substitute teacher during this time period. A regular staff of trained permanent substitutes was used to cover the classroom.

Outcome

Thirty fourth grade students were given the California Test of Basic Skills (CTBS) in October 1976. This test consisted of three parts, one of which assesses computational skills (60 questions). The groups were then compared using the ordinary t-test for group comparisons. The t-test was carried out using a .05 level of significance. The test results and the resultant t values and their respective levels of sifnicance are displayed in Table 7.

Table 7

	Pre-Test			Post-Test		
Groups	N	X	SD	N	X	SD
Precision Teaching	15	47	8.1	15	58	1.8
No Precision Teaching	15	43	9.8	15	55	4.3
Comparison						
t		1.42			2.16	
p		NS			.025	

The two groups did not differ significantly on the pre-test (t = 1.42). On the post-test however, the Precision Teaching group did significantly better than the group that was taught without using Precision Teaching. This provided further substantiation for our claim of effectiveness for Precision Teaching.

During the two years of the project, several schools outside of Cam-

den adopted our techniques. In Camden itself, a combination of widespread interest in Precision Teaching and data indicating that students in Forest Hill significantly improved their arithmetic skills led to a system-wide effort to adopt Precision Teaching procedures.

Planning for institutionalizing Precision Teaching arithmetic began in January, 1977. Training workshops began in June, 1978, and implementation during the fall of 1978. Although the training date was one year after the end of the 10th Cycle Project, the demonstrating school was still using Precision Teaching and could provide the needed resources. The resources included a large group of teachers who were both experienced with using Precision Teaching and in training other teachers to use the procedures. In addition, the resources of the Glassboro/Camden 12th Cycle Teacher Corps project were available. The 12th Cycle staff provided help with organizing and conducting the training and implementation.

One hundred Camden teachers attended the June workshop. They started to adopt Precision Teaching arithmetic the following September but a teachers' strike caused a delay. Adoption finally began in January, 1979.

Precision Teaching reading techniques are also being adopted throughout Camden. This effort is the result of pilot work started during the 10th Cycle project and continued under funding by the state of New Jersey. At first the state funded the project to document and expand the pilot efforts.

In July, 1978, the state conducted an on-site evaluation of the project. They were impressed with the work that had been completed and encouraged the Forest Hill Elementary School to seek a continuation grant. The second grant was funded and is being implemented this year (1978-79).

The continuation grant was funded for two purposes: the expansion of Precision Teaching to reading comprehension, and the dissemination of the Precision Teaching procedures to teachers involved with compensatory education. At present, 60 teachers have been trained by Forest Hill teachers and are implementing the procedures in their classrooms. Data will be analyzed in June to determine if students in the experimental groups learned more reading.

In addition to the above, the Camden Public Schools' Office of Staff Development offered two mini-courses during 1978-1979. The courses, Precision Teaching Arithmetic and Precision Teaching Reading are taught by teachers who received their training in the 10th Cycle project. About 15 teachers are enrolled in each course.

Conclusion

The Glassboro/Camden experience suggests that the following are of paramount importance in running a successful project:

- Choose a model that has a good chance of working in your situation.
- Supply needed human and physical resources—excuses don't help.
- Insure the cooperation of the key administrator of the school.
- Have instructors readily available to classroom teachers on-site and in their classrooms on a daily basis.
- Listen to feedback from pupils and teachers and adapt your program accordingly.
- Involve classroom teachers and pupils in the dissemination of practical teachers ideas to others.
- Remember that initial success depends upon teachers using the procedures correctly with their students and long term success depends upon making sure that they keep using these procedures.

In short, given good weather and half a chance, you reap what you sow.

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10 Adapting a Research Based Intervention Strategy: Student Initiated Activities to Impact Student/Teacher Roles

Jacqueline Lougheed

In August, 1976, an interagency agreement was finalized between Teacher Corps, Washington and the Office of Juvenile Justice and Delinquency Prevention (OJJDP). As a result of the agreement, amendments were attached to ten Youth Advocacy Teacher Corps projects to study student disruptive behavior and negative attitudes of adults toward disruptive youth in schools and institutions. This particular effort became part of a national School Initiative Study sponsored by OJJDP. The total study was designed to provide an information base and test strategies for reducing crime and disruptive behavior in schools. It was considered appropriate to negotiate the amendments with Youth Advocacy projects because of their focus on strengthening educational opportunities for school-age children and youth identified as delinquent, predelinquent, or disruptive. Such youth may be housed in detention centers, incarceratory institutions, public or private nonprofit schools for delinquent youth, or special centers within a public school which serve the special needs of juvenile delinquents and/or youth offenders. In concert with this focus, Youth Advocacy projects provide continuous professional staff development programs to improve the educational environment for troubled youth (Lougheed, 1977 and 1978). This effort, of necessity, requires strengthening community, agency, institutional, and judicial linkages on behalf of these youth.

Adolescence is a period of turbulence and stress, of trying to become and yet to a large extent being stuck in a "holding pattern" awaiting adulthood (Erikson, 1950). Caught in this holding pattern, alcoholism, ad-

diction, truancy, disruption, destruction, violence, withdrawal and alienation are the conditions of an increasing number of adolescents. In an attempt to determine the nature and extent of delinquency in the schools

"...Congressmen Bingham of New York and Bell of California introduced the Safe School Study Act in the House of Representatives. Following similar initiatives in the Senate by Senator Cranston of California, the Ninety-third Congress, as part of the Education Amendments of 1974 (Public Law 93-380), required the Department of Health, Education and Welfare (HEW) to conduct a study. The objectives of that study were to determine the frequency and seriousness of crime in elementary and secondary schools in the United States; the number and location of schools affected by crime; the cost of replacement and repair of objects damaged by schools crime; and how school crime can be prevented." (Califano, Berry, Graham, 1977.)

A study conducted by the National Institute of Education (NIE) sampled 4,000 elementary and secondary school principals in a mail survey, followed by onsite surveys of a nationally representative cluster sample of 642 junior and senior high schools, and finally, a more intensive qualitative study of 10 schools.

There are many important conclusions and findings from this study. Evidence gathered in collaboration with other studies and official sources indicates that acts of violence and property destruction in schools, which increased throughout the 1960s to the early 1970s, leveled off and remains a serious problem. Eight per cent of all schools indicated that vandalism, personal attacks, and thefts were at a serious level. This figure represents approximately 6,700 schools in the nation. As expected, secondary schools reported higher levels of school crime than elementary schools. NIE also found that:

"The proportion of seriously affected schools is related directly to community size: the larger the community, the greater the proportion of schools having a serious problem. The proportions ranged from 6 per cent of the schools in small town and rural areas to 15 per cent in large cities. ...although cities had the largest proportions of seriously affected schools, suburbs and rural areas had the largest number of such schools. In terms of numbers then, the problem cannot be seen as essentially urban." (Califano, 1977.)

Today young people with troubles are found in many communities, socioeconomic levels, and ethnic groups. Such problems may be a reflec-

tion of the conditions of our changing society and complicated way of life. It may also be a reflection of the way we treat one another, and more specifically the way we treat students and the environments provided for them.

From the NIE "Safe School Study," David Boesel, director of the study, found that 22 factors were consistently related to the level of school vandalism, disruptiveness, and crime. Among the more important factors identified were: (1) impersonalization and alienation at school leads to disruptive behavior; (2) larger schools with larger classes have more trouble; (3) by increasing the teacher to student ratio, less trouble and better school climate results; (4) schools in which students feel they have some control over what happens to them and in which they feel their courses are relevant have less trouble.

In response to the last point, John Rector, Administrator at OJJDP, appearing before the Subcommittee on Economic Opportunity in the House of Representatives, stated, in effect, that too often young people are systematically excluded from participating in the planning, operation, and evaluation of programs that supposedly exist for them, thus further alienating and denying them opportunities to learn and experiment. Students then become less accountable and responsible for their judgement and actions (Rector, 1978).

To help turn this negative, cyclical effect around an interagency agreement between OJJDP and Cycle 10 Teacher Corps encouraged and promoted youth participation and initiation.

The psychology of delinquent and criminal participation has been the focus of several studies (Cartwright, 1951; Cressy, 1955; Cloward and Ohlin, 1961; Fishman, 1965; and Schurtzgebel, 1954). The relevance of the psychology of participation is further amplified in a paper prepared by Grant (1970) describing his work with adult offenders and the effect involvement and significant role responsibilities can have in changing behavior. Major advocates for developing new participatory roles for youth in society include New Careers (Pearl and Riessman, 1961), National Commission on Resources for Youth (1975), Center for Action Research (1976), as well as new roles for youth in schools related to children learning by teaching (Gartner, Kohler, and Reissman, 1971). The student-initiated activity was based on the following premise: the higher the level of youth involvement and participation in decision-making; the greater the probability that these activities will impact positively upon student behavior, thus reducing acts of disruption and destruction. The extent to which there is a direct positive link between legitimate participation and delinquency

prevention is unclear. However, the existence of the link is grounded on theoretical formulation and data gathered from the incorporation of various strategies used to promote youth participation.

Research Adaptation

The Teacher Corps-OJJDP amendments (known henceforth as Activity 11) specified two important agreements: (1) a school not involved in other aspects of the local Teacher Corps program was selected as the target site, and (2) the major intervention strategy used must be student-based. In an effort to insure and promote greater youth participation, student-based activities was changed to student initiated activities (SIAs) changing the student role from simple involvement to initiation and the adult role from direction and control to support and guidance.

Activity 11 was intended to change the roles of both students and adults fostering greater participation and thereby feelings of ownership on the part of students. As cited earlier, a link has been established between participation and changed behavior. By helping students acquire skills and experiencing success in making decisions impacting significant areas in their own lives, it is hypothesized students will acquire new understanding about and ownership of their behavior, the effect this behavior has on their relationships with others, and ultimately on the success they have in changing their environment. Student-initiated activities were proposed to accomplish this. Through SIAs young people are initiating, planning, implementing and evaluating activities for classrooms, school and community.

Certain facts are extremely important when considering SIAs. First, SIAs constitute a process taking place within a given social system. The social system can be a temporary one operating in the context of more permanent social systems. Each system in turn sets limits for the process, how it will operate and how far it can be moved. The quality of the process is described in terms of the developing roles youth and adults play and the access this provides youth to new roles of responsibility leading to behavioral change.

It is imperative, therefore, to understand the process, but it is also important to understand the dynamics operating in the environment where the process will be used. The values , attitudes and acceptable roles for youth and adults determine how much change will be tolerated and what support for these changes will be forthcoming.

Project Goals

Adapting the research base cited above, and in keeping with local student needs two major goals were generated:

1. To encourage student autonomy through the development of student-initiated activities (SIAs) in school and community by:
   - establishing and maintaining a Youth Corps,
   - designing and implementing a social studies curriculum, and
   - supporting and encouraging SIA.
2. To develop and implement monitoring strategies for this model of student-initiated activities for students at a junior high in Farmington, in the community, and Teacher Corps by:
   - documenting all processes necessary to develop and support SIA,
   - disseminating information concerning SIA to a variety of audiences,
   - demonstrating SIA as an important education strategy to a variety of audiences, and
   - reporting process and product evaluation.

The Implementation Process

The school site selected was East Junior High, with a student population of 1,200. The school is centrally located in Farmington and its population represents the diverse socioeconomic stratification existing within the larger community. In addition, the school also drew students from the two residential treatment centers located in the community: St. Vincent and Sarah Fisher Home (a residential home for neglected, abused, predelinquent and delinquent youth, primarily court appointed) and Boys Republic (a residential treatment center for emotionally disturbed, adolescent, delinquent boys, primarily court appointed).

The school population at East increased and changed significantly just before the first year of the activity when Farmington Jr. High, another school in the district, closed and the students were reassigned. The shift in school population resulted in a higher concentration of students from lower socioeconomic backgrounds assigned to East. This change, plus the usual addition of new students, resulted in 50 per cent of the student body being new to the school that year. These student changes affected the entire student body and created problems for staff and students.

Once the school site was selected, the next step was the selection of a Program Coordinator. It was decided someone on the junior high school

staff, knowledgeable about the school, students and staff, should fill the position. One of the school's counselors was selected. Next, an interdisciplinary planning committee was convened to discuss options and directions for the Activity 11 project. Members of the team included: Juvenile Justice officials, Farmington youth assistance personnel, the principal of East Junior High, an East Junior High counselor, members of the Teacher Corps Activity 11 staff from the university support faculty from sociology, psychology, and other disciplines.

From the onset of the planning sessions, the committee began to wrestle with several contextual problems, among them a definition for disruptiveness. The data provided by community agencies and included in the grant proposal were scanty because such data had not been systematically collected in the community, and categories of offenses were poorly defined. The committee was concerned "disruptive" would not be defined exclusively in terms of annoying behavior. The committee was also concerned that the students involved in the program should not be labeled "disruptive" and/or "delinquent." There was agreement that such negative labeling would not facilitate positive change in behavior.

Consequently, the committee decided to promote a Youth Corps as an exciting, innovative new group at the school, created to help promote greater student involvement by designing new activities. Not only did the decision to develop a Youth Corps resolve the committee's concern about possible negative labeling, but it also created a structure within the school that could support student-initiated activities. It was hoped a cross-section of the student population would be part of the Corps. In addition, outreach to the community was to be encouraged. The concept of a Youth Corps also seemed to present a possible model for replication in other suburban schools facing similar issues and problems.

To arouse student interest in Youth Corps, Activity 11 staff presented a skit in each of the seventh and eighth grade English classes. The skit was interesting, humorous, and presented the need for a Youth Corps to promote greater student involvement in developing new classroom, school, and community activities. After the presentation, over 350 students volunteered for the Corps. The student volunteers were rated by a panel of "experts" including school counselors, social workers, administrators, teachers, and Farmington youth agency personnel. The panel rated student volunteers as: disruptive (those students who had been seen by law enforcement authorities), and non-disruptive (those students who had no previous history of school and/or community disruptiveness and showed little potential for such).

Even though the original intent of the committee was to have an equal number of disruptive and non-disruptive students, the reality of the situation was that the Youth Corps consisted of 45 students, most of whom had behavioral, emotional and/or academic problems. In other words, the panel selected students who could profit from a program providing special attention to youth in trouble—students in need.

Having selected the Yough Corpsmembers, the next step in the process was to help them acquire certain skills the committee felt were essential in order for them to become succesfully involved in SIA's. Skills included: decision-making, problem definition and solving, research, communication, observation, group process, interpersonal, self-assessment, planning, and evaluation. Heavy emphasis was placed on the skills during the first few months of the program and they were continuously reinforced for the duration of Activity 11.

Initially, activities to increase skill levels in the above mentioned areas were adult directed on a total group, small group, or individual basis. The Youth Corps staff continually encouraged comments and suggestions from the students and modified activities to enhance aspects of the activities students felt were most important and helpful.

As students progressed through skill building and group building sessions, the sessions were combined with the beginning steps of problem identification. As minimal skill levels were reached and awareness was raised on personal and interpersonal dynamics, the project moved to the next phase of helping students with the initiating stage, utilizing a decision-making model. The model consisted of a five step process: (1) identifying a need or problem; (2) focusing on a manageable aspect of a problem; (3) discussing possible solutions and selecting one; (4) developing a plan of action for implementation; and (5) assessing results.

Preparing the school staff for Activity 11 and providing professional development for teachers interested in working with the Youth Corps, or in trying this intervention strategy in their classrooms, was an involved and extensive process. A series of eight seminars were held around themes focusing on problems of youth today, institutional and agency responses to youth problems, and suggestions to improve institutional responsiveness and effectiveness. Teachers and staff at the school as well as at the youth serving agencies, parents, community persons, law enforcement and judicial personnel were invited to attend. In all, over 100 people attended each session. The project provided university credit to individuals participating in the seminars and interested in acquiring credit. Generally, the seminars help build interest and raise awareness levels. More specifically,

they helped in the setting of program limits in identifying possible key staff for the project, and in reaching some degree of conceptual congruency as the group moved from awareness to suggestions for adaptation.

The next major step in the process was to prepare teachers to adapt the research-based intervention strategy of student-initiated activites. This was the most difficult and demanding step in the adaptation process for several reasons. Implementation of student-initiated activities required the rethinking of values and attitudes and the development of new teaching techniques. It necessitated creating new roles for adults and students differing significantly from traditional roles. There must be new ways of behaving toward others. Most students adapted to their new roles with increasing ease as they acquired certain enabling skills such as decision-making, communication, interpersonal and group relationships, and leadership in planning, implementing and evaluating activities. The adults, however, found the shift to the new roles very difficult since nothing in their training or experiences prepared them for this major change.

The adaptation of this intervention strategy required a more indirect as opposed to direct teaching role. Direct and indirect teaching roles can be thought of as being on opposite ends of a continuum which describes who controls the resources, the time on-task, the learning environment, the diagnosis of needs, the prescription of activities and the evaluation of results. In the direct teaching role, the teacher determines needs, diagnoses achievement and developmental levels, prescribes academic and social objectives, plans activities and evaluates achievements. The teacher controls time, resources and environment. The student fits into what is planned and participates in prescribed activities. In the indirect role, the teacher plays a supportive role as the facilitator, guiding and assisting students to acquire skills necessary to assume increasing responsibility for their behavior. The indirect role shifts the control of time, resources, and environment to the students with the teacher assuming the highly significant role of facilitator.

The indirect teaching style is more appropriate in the adaptation of student-initiated activities for it permits students to be more self-reliant, independent, aware and accepting. This teaching style facilitates personal discovery and continuous growth in seeking new skills and information. It fosters the student's claim to ownership over personal behavior and improves self-esteem.

The selection of teachers as the initial adaptors of this research-based intervention strategy became crucial to this step. A very elaborate screening system was established to determine candidates' teaching styles and attitudes held about themselves and appropriate roles for students and

teachers. This information was augmented with observations and interviews with others knowledgeable about the candidates.

The results of the screening indicated the candidates for the most part were bright, articulate, considered themselves successful and were considered successful as teachers by others. However, they tended to cluster around the direct teaching end of the continuum and had varying degrees of difficulty in accepting the viability of using student-initiated activities, especially with students already having difficulty in school. They were particularly concerned this intervention would foster a decrease in already inadequate self-control and on-task behavior. The task was difficult, but the committee finally selected candidates showing more willingness to experiment.

A very extensive summer program was designed to prepare these candidates. First, the research and theoretical base of student-initiated activities was carefully reviewed, as well as the process for implementation. Second, the teachers became students in this process with the Teacher Corps staff modeling the indirect teaching style. Working on communication, decision-making, interpersonal relations and leadership, teachers were taken step-by-step through the enabling skills. Much time was spent on values clarification, role playing and discussions of their perceptions and feelings as they moved through this process and began to plan, implement and evaluate their activities. Then the roles were reversed and the Teacher Corps staff became the students and the teachers became the facilitators. In addition, Youth Corps students were scheduled in at appropriate times so the teachers could work with them on student-initiated activities. Finally, other teachers from the school site, interested in using student-initiated activities in their regular junior high classrooms, were invited in and taken through the process by teachers.

At the end of the training component the teachers were conversant with this research and theory-based strategy and had demonstrated varying degrees of skill in implementing the strategy. However, we found they were still having difficulty consistently assuming the more indirect teaching style and frequently slipped back to the more comfortable direct teaching style when it was not required by the situation. Therefore, it was apparent through staff observations that continuous support and modeling sessions would be necessary as they began to work with students.

As the school year began, the Summer staff development efforts were continued with weekly individual meetings between the coordinator and each teacher, biweekly meetings between a member of the university support staff and each teacher, and biweekly group meetings for the six

classroom teachers wishing to test the viability, feasibility, and transferability of this intervention strategy. The teachers had the potential of reaching all grade levels and most academic ability groups of students. Subject areas teachers represented included mathematics, health, English and drama.

The SIAs generated by the Youth Corpsmembers were varied and interesting. They ranged from activities initiated by one Corpsmember to those initiated by a group. They encompassed activities within the school designed to impact on the environment. Some of the activities included a school clean-up program and a bulletin board service for teachers. Some SIAs impacted on programs by providing new activities such as school dances, assembly programs, and special contests, such as a speech contest.

An interesting and innovative SIA centered around one of the school bathrooms permanently closed as a result of vandalism. One group decided if they fixed up the bathroom and made it attractive, the students would keep it neat and clean and the bathroom would stay open. The Corpsmembers painted a very attractive graphic display on the walls, built a much needed shelf and made this bathroom one of the showplaces of the school. Needless to say, the bathroom was reopened and it was kept neat and clean.

Another group worked at a nearby nursing home recording oral histories and providing entertainment and services for the residents. Another group spent time at a neighboring elementary school providing activity programs for the students and generally helping on the playground. One of the activities involved demonstrating how to make pizza bagles and punch. From the initial contacts, some helping relations of one student to another were established and some initial peer counseling evolved. As in all other activities, Youth Corps members made all the contacts at the elementary school, arranged to be excused from the Junior High on a scheduled basis, and made sure everyone at both schools was informed about what they were doing. Another group worked with one of the officers of the Juvenile Division to organize after-school recreational programs for students. The officer had been trying to get a program started without success but with the help of this group a program was established.

Involvement in SIAs was not limited to those members of the Youth Corps. In addition to the 45 students, another 50 students worked with the Youth Corps teachers in regular classroom settings. The six teachers who participated in the summer workshop had an additional 780 students in their classes. Therefore, approximately 65 per cent of the student popula-

tion interacted with teachers who had been prepared to implement SIAs in their classrooms.

Outcomes

The project staff wanted to know how the concept of a Youth Corps and the intervention strategy of SIAs were perceived by students, parents, and teachers actually involved in this activity. To ascertain this, separate close out questionnaires were administered to each of the three groups and the resulting data tabulated. Second, some indication of the school climate as it related to teacher and student perceptions about levels of disruptiveness in the school, fear of disruptiveness, and occurrences of certain types of disruptiveness was desired. The California based Social Action Research Center adapted the NIE Safe School Study questionnaires and administered a pre-post assessment of the school climate. The Youth Corpsmembers were asked to share their perceptions about their own levels of participation and the importance of the activities in which they were engaged. The data were gathered on weekly logs. Teachers working with the Youth Corps were asked to fill out daily logs recording their perceptions of student behavior. In addition, Youth Corpsmembers designed and administered a community survey to gain some understanding of attitudes and values held by a sample of parents and community persons. Finally, documentary analysis of student citizenship, academic standing, and absences were conducted to determine if any changes occurred over the life of the project. Each section of the data was reported separately and then combined as a basis for the generalizations and conclusions.

Overall Program Reactions from Students, Parents and Teachers

At the conclusion of the program, questionnaires designed to assess general reactions held by parents, students and teachers to the Youth Corps concept and to the SIA intervention strategy were administered. Students, when asked what they liked best about the Youth Corps, responded "the SIAs themselves." Then, in order of number of responses, their choices were: getting out of a traditional social studies class; the Youth Corps teachers; making new friends; meeting new people; the social studies mini courses; taking more responsibility; and understanding themselves better. When asked what should be changed, only a few suggested minor structural changes. Many wanted more students involved.

They felt, however, they would have learned more social studies in a regular classroom even though they enjoyed Youth Corps more.

When the parents were asked if the program should be continued, 83 per cent said yes. They all felt student behavior and attitudes could improve through participation in school and/or community activities. When asked "has your child's behavior improved during his involvement with Youth Corps?", 77 per cent responded yes.

The teachers surveyed all agreed (100%) student involvement in student-initiated school and/or community activities can positively change student attitudes. They also gave a 100 per cent agreed response that SIAs are a viable alternative education strategy. As for changes, they suggested more small group counseling, and precise criteria for selection of Youth Corpsmembers. They felt staff selection should have a high priority—"the right kind of people are essential."

School Climate

OJJDP funded the Social Action Research Center (SARC) of California to conduct a climate study on all schools (93) in the School Initiative Study. Adapted versions of the NIE's "Safe School Study" instruments were used and were administered to all teachers in East Junior High and a random sample of 225 students. Table 8 shows weighted residual scores and differences between our actual post-test scores and the average for other schools in the study in number of standard deviations from this mean.

Table 8
School Climate Residual Scores
as Reported by Students and Teachers

Student Scales	Residual Score	# SD from Average
Disruption	+.018	+0.40
Fear	+.045	+0.98
Drug Availability	—.011	—0.17
Person Victimization	+.018	+1.20
Property Victimization	—.034	—0.83
Teacher Scales	**Residual Score**	**# SD from Average**
Disruption	+.024	+0.30
Fear	+.084	+1.14
Person Victimization	+.097	+1.56
Student Person Victimization	+.069	+0.70
Student Property Victimization	+.002	+0.02

Using the pre-test scores on the student and teacher questionnaires and comparing them using weighted school setting scores, SARC predicted post-test scores.

The predicted score compared with scores actually obtained on the post-test. The difference between scores predicted and obtained is the "residual" score. A minus score means that the post-test score was lower than expected (less fear, etc.). A plus score means that the post-test score was higher than expected (more fear, etc.). The second column gives the number of standard deviations (SD) each "residual" score is from the mean of residual scores for all 93 schools in the national study. This can be roughly interpreted by assuming that approximately two-thirds of the schools will have residual scores within one SD above or below the mean and approximately 95 per cent will have residual scores within two SD above or below the mean.

In general, post-test scores were higher than predicted in all areas except for students' perceptions of the availability of drugs and property victimization. In other words, there is more reported disruption, fear, and victimization than predicted. It is also very interesting to note the closeness of student and teacher perceptions on these dimensions. Students and teachers viewed their school world in a very similar fashion.

Youth Corpsmember's Perceptions of their Participation in and Importance of Activities

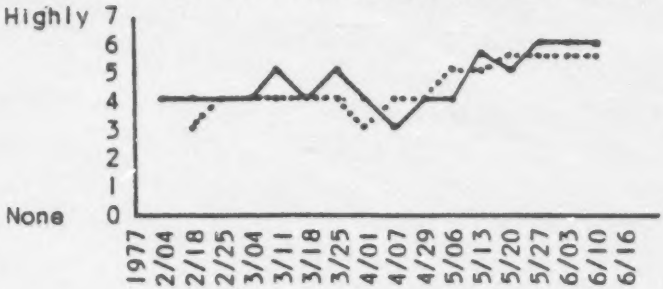
At the end of each week, Youth Corpsmembers were asked to assess their level of involvement in that week's activities and the importance they placed on these activities. A simple seven point continuum was used to gather these perceptions. Table 9 gives mean scores for all members' perceptions on two dimensions from the beginning of the program in February to the end of the first semester in June. The Youth Corps was divided into two groups and the mean scores were reported separately. This division of students was based solely on availability to accommodate student schedules. Table 10 gives mean scores on these two dimensions from September through June of the second year of the project. During the second year, the Youth Corps met as one group.

As can be seen in Table 9, the seventh hour group began with a participation mean score of 3.0 and moved gradually upward to a terminal mean score of 5.5. A similar progression can be noted for the sixth hour group, starting at 4.0 and moving to 6.0 at the end of the semester. The en-

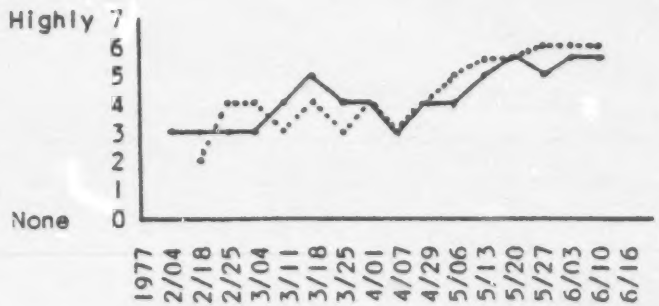
ding mean scores for participation are interesting, not only in terms of the steady and consistent increase over the semester to very high perceived levels of participation, but also when one considers that a large percentage of these students typically are perceived by others and themselves as not being involved. The second question dealing with importance placed on the week's activities shows even greater increase. Here the groups start with mean scores of 2.0 and 3.0 and move in a similar upward progression to 6.0 and 5.5 respectively. The average gain in perceived importance of the activities of 4.0 and 2.5 moves the groups to very high levels of perceived importance placed on the Youth Corps activities at the end of the semester.

Table 9
Student Weekly Reaction
2-4-77 through 6-16-77

1. How much did you become involved in activities this week.



2. How important was the week to you?

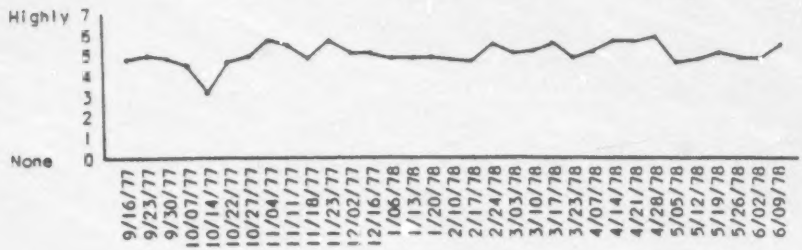


_____6th hour responses ..... 7th hour responses

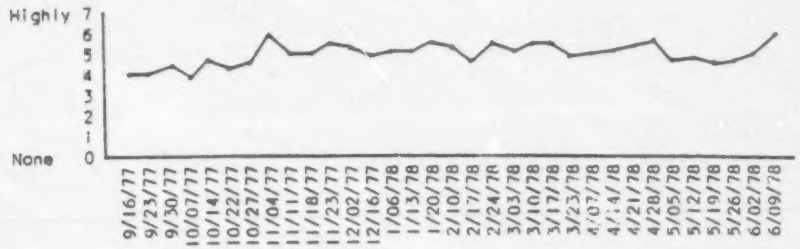
In Table 10, perceived participation in Youth Corps activities begins with a mean score of 4.95, slightly lower than the mean score at the end of the first semester, moving to a high mean score of 5.55 and an average for the year of 4.77. Importance placed on Youth Corps activities starts with a mean score of 3.95, considerably lower than the terminal mean scores for the first semester, moves to a high of 6.0 to a terminal score of 5.5 and an overall mean of 4.70. The mean score profile for importance placed on activities is relatively flat, showing only slight variation.

Table 10
Student Weekly Reaction
2-4-77 through 6-16-77

1. How much did you become involved in activities this week.



2. How important was the week to you?



Teachers' Perceptions of Youth Corps Members

Each day, at the completion of the Youth Corps meetings, the Youth Corps teachers were asked to log their perceptions of student behavior in terms of student on-task behavior, students working together, Corpsmembers' enjoyment of activities, demonstrated level of self-control, and demonstration of applying previously learned skills. The rating scale was one to five, with five being the highest. Table 11 gives the monthly mean scores for these perceptions.

In all five areas, teachers rated students as improving throughout the year. Students working together, self-control, and ability to utilize previously learned skills were all rated slightly below average at the beginning of school but by the end of the year, the mean scores were above average. Teachers saw the greatest improvement in students' demonstrated ability to apply previously learned skills (decision-making, problem solving, etc.) and in getting along as a group. Important results such as helping students use skills in problem solving and initiating activities, as well as working well with other students, were primary goals of this project. Teachers also perceived the students as liking the Youth Corps and the activities they were initiating. When several activities were completed (January and May), teachers perceived levels of enjoying as being extremely high. Also, while there was not a great deal of perceived change in student on-task behavior or in level of self-control, mean scores were con-

Table 11
Mean Scores by Month
of Teachers' Daily Perception of Student Behavior

	Student On-task Behavior	Students Working Together	Enjoyment of Activity	Demonstrated Level of Self-Control	Demonstration of Applying previously Learned Skills
September	3.32	2.91	3.45	2.85	2.97
October	3.61	3.18	3.34	3.32	3.00
November	4.10	3.69	4.20	3.82	3.87
December	3.87	3.60	3.96	3.56	3.56
January	4.98	3.64	4.54	3.58	4.18
February	3.81	4.00	4.06	3.69	3.75
February SIAs	4.04	3.80	4.36	3.89	4.30
March	3.32	3.50	3.82	3.55	3.28
May	4.67	3.67	4.67	4.00	3.67
June	4.43	4.20	4.29	4.14	4.33

sistently rated above average as perceived by the teachers. This is important to note because two of the most common reasons given by teachers and staff for not supporting the major intervention of student initiated activities were "students will not stay on-task and complete what they have started" and, secondly, "when students are involved in greater freedom activities their levels of self-control will be lower."

Youth Corpsmembers' Survey of Community and Parent Attitudes

In the course of some of the Youth Corps activities, Youth Corpsmembers decided it was important to obtain a sampling of attitudes from parents and community persons about goals they held for junior high students. The Youth Corpsmembers designed a questionnaire and administered the questionnaire to parents and other community persons. Seventy-two questionnaires were completed. Seventy-eight per cent of all respondents were female, with an average age of 38 years. Results obtained from the questionnaires are tabulated in Table 12. The respondents were asked to check the degree of importance they placed on each of the questions.

Table 12
Parent and Community Responses to Youth Corpsmembers' Survey

	Very Important		Quite Important		Somewhat Important		Not Important		Total
	No.	%	No.	%	No.	%	No.	%	Number
1. Get good grades	39	55	28	39	3	4	1	2	71
2. Get along with other students	42	58	23	32	7	10	0	0	72
3. Make own decision	48	67	20	28	4	5	0	0	72
4. Get along with teachers	38	54	24	34	7	10	1	2	70
5. Have ability to communicate with adults	37	54	25	36	6	9	1	1	69
6. Get involved in school activities	15	21	26	37	26	37	3	5	70
7. Willingness to help others	36	51	27	38	8	11	0	0	71
8. Avoid breaking school rules	44	61	18	25	8	11	2	3	72
9. Become a leader	11	16	18	26	26	38	13	20	68
10. Have self-understanding	40	59	18	26	10	15	0	0	68
11. Have responsibility for planning activities	22	31	20	28	26	36	4	5	72

Citizenship, Academic Standing and Absentee Rates for Youth Corpsmembers

An analysis was made of citizenship, academic standing and absentee rates for all Youth Corpsmembers at the beginning of Activity 11 and again at the conclusion of the project. Pre-post changes in citizenship grade point average (GPA) were positive but not statistically significant. Academic GPA remained stable with relatively no change on a pre -post basis. (It should be noted the project was not designed to specifically impact academic performance.) In comparing absenteeism on pre-post basis, the absenteeism rates for Youth Corpsmembers were stable. In other words, Youth Corps membership did not change absenteeism patterns.

Generalizations and Conclusions

What has been done in Activity 11 is viewed as a developmental effort. It would be naive to think attitudes, values and behavior would be changed over a brief 18-month period. But some points deserving further attention have been made. The findings from the NIE's Safe School Study pointed both to the extent of adolescent "troubles" as well as the pervasiveness of the problem. In addition, adults in the environment share the students' perceptions of the existence of disruptiveness and concomitant fear.

Another result of this effort was the ability to establish and maintain a Youth Corps. The Corps provided a vehicle to test the intervention strategy—SIAs with a group of relatively disruptive young people. The concept of the Youth Corps and the intervention strategy enjoyed favorable acceptance by adults, students, and teachers. Teachers working with the Youth Corps perceived gradual growth on the part of Corpsmembers. They saw them improving in terms of on-task behavior, getting along with one another, enjoying the activities, demonstrative self-control, and utilizing previously learned skills in initiating new activities. Youth Corpsmembers saw themselves as participating at increasingly high levels and placed increasingly more importance on what they were doing over the 18 month period.

A Community Survey provided some interesting insights into the need to assess how a major constituency views the school and the priorities it places on a series of goals. Data obtained in this survey was generally supportive of the major intent of this effort. Those persons sampled placed

high priority on conformity and success as defined by good grades and getting along, while being a leader in school related activities was of low priority.

No attempt was made to evaluate the SIAs in terms of quality, extensiveness, or possible impact on behavior or the environment. To do so at this early stage of development would have seriously and negatively affected the beginning efforts.

Corpsmembers adapted to their new roles of initiation much more quickly than the adults who found themselves constantly shifting gears. Adults found themselves shifting from directing to supporting, encouraging and guiding. This was a difficult shift to make, for nothing in their training or experience prepared them to do this. There is absolutely no question about the key role adults play in opening the environment to allow new student roles to emerge. Student-initiation roles encourage students to make important decisions about what they do and how they do it. Adults who can support this process must trust themselves and students. Trust must go hand-in-hand with confidence in their competence to guide students as they experiment and learn new skills. Adults must be able to guide the process without dominating. They must be able to handle ambiguity and failure and help their students do the same. They need vision to see new roles for themselves in a growing, changing, reciprocal interchange with the youths. If adults can do this, our experiences indicate student growth will flourish and participation can change behavior.

Of greatest impact, the Youth Corpsmembers were able to initiate activities important to them and achieve results equally important to them.

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SECTION IV

DELIVERY SYSTEMS

11 Delivery Systems In Staff Development: When, Who & Where

William Cole

In Sections I-III the process of systematically adapting research findings in staff development (inservice teacher education) was presented, followed by exemplars. The process used to conduct staff development is called the delivery system. While there is a variety of ways in which staff development can be implemented, careful consideration of the delivery system is critical. This section provides descriptions of delivery systems used by selected Teacher Corps Research Adaptation Cluster (RAC) projects implemented since September, 1975.

Teacher Corps enlarged its mission to emphasize staff development as a vehicle for meeting the needs and improving the opportunities of students from low-income families in 1975. While the focus on staff development was new to Teacher Corps, it was certainly not new to teachers. Staff development has had a long history in the United States.

Originally conceived to supplement the knowledge and training of teachers who had received their teacher certification in normal schools, the concept of staff development has changed very little during the ensuing years. During this time, "provisions for the improvement of the inservice teacher have rarely been adequate. The typical program has suffered from a lack of energy, precision, direction, and imagination." (Rubin, 1978)

This sad state of affairs is further corroborated by Edelfelt and Lawrence (1975) in viewing inservice staff development as, "a close resemblance to the concepts that have shaped it historically." This viewpoint of staff development can be summarized as inservice education being

planned and developed by higher education faculties or the school district administration and in many cases both, taught by higher education faculty, varying in length from one to several sessions, and usually conducted on teachers' own personal time. Teachers are often rewarded for their participation by receiving graduate course credit which may then be applied to advanced degrees. Obtainment of advanced degress, in turn, leads to progress on salary schedules. Compounding this well-established model is that the content and scope of staff development activities are usually not based upon the needs and/or concerns perceived by classroom teachers.

While it would be in error to assume that all staff development lacks value and has not produced any significant changes in teacher performance or student achievement, it is safe to say, "...the historical legacy of inservice education has been characterized by randomness and fragmentation, by programs that deferred more to expediency than to need, and by methodologies that have been largely atheoretical" (Rubin, 1978).

These fragmented, piece-meal attempts at staff development have led to heavy criticism. "Teachers, school administrators, higher education faculty and administration, legislators, school board members, and scholars in the field (of education) all tend to speak of inservice teacher education with negative connotations" (Joyce, 1976).

In recent years, many events have lead to vocal criticism and have created a need for a systematic approach to staff development. The demand for teacher accountability on the part of school boards, State Boards of Education, and the public have led teachers and professional associations to become concerned about professional training at both the preservice and inservice levels. This, enhanced by the emergence of teachers through collective bargaining as a loud and strong voice in the decision-making process of educational programs and activities, has accentuated the need to take a serious look at staff development.

To this end, Teacher Corps in its 10th, 11th and 12th Cycle RAC projects initiated staff development programs that were school-based, programmatic; collaboratively designed by higher education faculty, public school administrators, classroom teachers, and community members; and, systematically attempted to adapt research findings to classroom practice. Additionally, in 1975 a major study of staff development was initiated by the National Center for Education Statistics. The first report of this study, *Issues to Face* (1976), arrived at the conclusion that several dimensions of staff development are seriously flawed, "...structural problems overshadow specific problems, making narrow remedies of doubtful value."

Issues to Face also suggests that there are four major dimensions

that come together to form the overall operating structure of staff development. They are:

1. Governance System
2. Substantive System
3. Delivery System
4. Modal Systems

While *Issues to Face* urges, "it is this complex structure of interlocking systems which must be studied and improved," there is an interface with Teacher Corps and the Research Adaptation Cluster in the importance of the delivery system.

When

In using the phrase "delivery system," one must be careful. The phrase does not imply a rigid or unique structure. In fact:

> *This situation is confounded by the fact that there are so many ways of delivering inservice teacher education. Inservice education can be accomplished through courses, short workshops, consultation with teachers on site, informal teacher centers, instructional systems which deliver services to teachers and by infusing "helping" teachers and supervisors into the context of the teaching situation.*
>
> (Nicholson, Joyce, et al., 1976)

Because of this plurality of approaches to delivery systems, planners of professional development are confronted with some very difficult questions. An initial question planners must address is *when* the professional development activities will take place.

Traditionally, professional development has taken place after school, evenings or Saturdays. In many cases, teachers are asked to commute to the "instructional" setting. Currently, teacher associations as well as many teachers are arguing for "on-the-job released time for professional growth" (Rubin, 1978). In other words, teachers are given released time during the professional day.

The use of released time during the professional day can be an expensive commodity for school boards. Faced with escalating budgetary concerns, the question of financing is considerable. Usually, when teachers are out of their classrooms, they are replaced by paid substitute teachers. Yet, as desirable as released time for professional development is to teachers, it does present a problem in addition to finance. Many teachers are unwilling to leave their classroom only to return to confusion and chaos. Strategies have been developed not only to address releasing teachers during the professional day, but to assure them that their classrooms will function effectively in their absences.

The University of South Florida/Hillsborough County Public School system and the Lansing School District/Michigan State University Teacher Corps projects have used a preservice/inservice model to "release" classroom teachers during the professional day for staff development. Discussion of these models is presented below.

William Cole

University of South Florida/Hillsborough County Public School System

Excerpt from the paper "The Application of a Diagnostic/ Prescriptive Model to Inservice Training Utilizing Research Findings" by John Bullock: RAC Conference, San Francisco, April 1979.

The thrust of the University of South Florida/Hillsborough County Public School System Teacher Corps project in the Mitchell Elementary School was the application of research findings on diagnostic and prescriptive instruction. Instruction was provided in developing and demonstrating an approach which facilitated the learning of mathematics and reading and multicultural education to low income children utilizing instructional technology and management behavior. Research findings were used to develop a training program that was implemented cooperatively by the university, school system and community.

This thrust was the result of a collaborative approach to solving locally identified problems in the State of Florida and particularly in the local community. For research to be an effective tool in educational improvement it must ultimately make an impact on teachers in the classroom. This effort was a deliberate attempt to link research and researchers with implementors.

This inservice delivery system was designed to use an existing program. One of the University of South Florida undergraduate programs for the preparation of elementary teachers is unique in that emphasis is on continuous involvement with children of all ages and grade levels. A team of 25-30 students, under the direction of a team leader, work together throughout the entire last two years of their undergraduate program. These students are at a school four days each week and spend 10-12 hours per week for four quarters in classrooms. Additionally, a full week of teaching days is required in each of the last three quarters.

College professors actively participate in these field experiences and the school setting provides opportunities for interaction between college professors, teachers, students and community personnel. One such team was located at the project target school and served important functions in the project program. A unique outcome was that the school staff could be available for inservice or staff meetings during the school day while preservice interns were present.

Such a setting also allowed college professors to observe preservice

interns during the day to day operation of the project and to become involved in what was happening at the school.

As a result of this approach, teachers were released two mornings each week for inservice. Teachers also attended inservice two afternoons each week for the first year of the project and one afternoon per week during the second year. In addition to this schedule, teachers attended a media/multicultural combined workshop during the intervening summer.

A second team was important in the functioning of the inservice delivery system. The Operations Team regulated the project's daily operation; namely, administration, evaluation and program development. Membership on this team was composed of: the five university training coordinators of mathematics, reading, educational technology, multicultural and management of behavior; as well as the Mitchell School principal; the Teacher Corps team leader; the community coordinator and one Teacher Corps intern.

This team was responsible for planning, decision-making, implementation and dissemination. In this scheme, the director of the Teacher Corps project assumed the role of executive secretary and each member of the team performed the tasks assigned by the team.

An Example of the Inservice Delivery Pattern

The multicultural education component is used here to demonstrate the delivery system of a typical project content area, including the rationale, the determination of objectives and various activities.

Rationale and Objectives.

The initial phase of the multicultural education component was devoted to the identification of goals and objectives deemed appropriate to the needs of the target population. A committee of teachers, Teacher Corps interns, and university personnel was established for the purpose of developing goals and objectives which would meet the needs of all teachers, Teacher Corps interns and children at Mitchell School. It is important to note that the committee's work resulted in the revision of goals and objectives originally outlined in the multicultural education component of the Teacher Corps proposal.

The Mitchell School Multicultural Education Committee identified two objectives for the component. The objectives were:

Objective 1—To investigate the development of attitudes which place value on the concept of cultural pluralism.

Objective 2—To provide teachers with the knowledge and skills necessary to help culturally different children maintain a positive cultural iden-

tity while recognizing the need to coexist in a society characterized by a multitude of cultural groups.

Activities.

Following the development of objectives by the Multicultural Education Committee, committee action focused on identifying resources which would be needed in implementing the multicultural education component. In addition to scheduling inservice sessions during the professional day, a list of materials related to multicultural education was identified and ordered.

Sessions conducted in the Spring of 1977, focused on the development of a multicultural education concept relevant to the stated objectives. At the outset, time was allocated to an exploration of the concept "multicultural education" as it may be differentiated from concepts such as "multiethnic education" and "intergroup relations." The integration of information obtained from the Multicultural Education Conference held in Jackson, Mississippi, in January, 1977, with information produced during the inservice sessions served as an important resource and resulted in a definition of multicultural education.

The second phase of the Spring, 1977, sessions focused on examining the influence of values as they related to intergroup and interpersonal behavior. In an effort to promote attitudes in harmony with the culturally different rather than a culturally disadvantaged orientation, teachers and Teacher Corps interns were involved in sessions which focused on the cultural value orientation of selected minority groups and examined how such value orientations frequently came into conflict with the value orientations of the dominant group. Discussions emphasized cultural values, customs and traditions as positive aspects of classroom interaction rather than as deficiencies which required compensatory intervention.

The major activity of the multicultural education inservice component during the June-August 1977 period was a workshop in which multicultural education concepts were integrated with content and skill development in the area of media technology. The integration of media technology with multicultural education concepts was appropriate to the objectives of the project because it provided teachers with skills in teaching multicultural education concepts through the use of multimedia instructional programs.

Another dimension of the workshop activity involved providing teachers with the opportunity to become exposed to the diagnostic/prescriptive approach. Since the major thrust of the University of South Florida/Hillsborough County Teacher Corps project was to prepare teachers to use a diagnostic/prescriptive model in assisting children found to have difficulty in mathematics and reading, it was appropriate to organize the

workshop activities so that participants could become familiar with the diagnostic/prescriptive process with a multicultural education and media setting.

The workshop was conducted within two time periods. This was done so that small group work was possible. Teachers were placed on grade level teams and were asked to simulate a clinical team analysis of data contained in hypothetical case records. Once the clinical team analysis had been conducted, participants were instructed in media technology which could be used in treating the difficulties identified through the analysis process.

Sessions conducted in Fall, 1977, were oriented toward developing methods and materials related to implementing multicultural education in the classroom. This was accomplished through the integration of multicultural education with the social studies curriculum.

Multicultural education activities were reduced as the project moved into the development and implementation of the clinical team concept at Mitchell School. Each Teacher Corps staff member, including the multicultural education coordinator, was assigned to one of the six clinical teams established to Mitchell School. Teacher Corps members were assigned to clinical teams to further reinforce in principle and in action the notion that clinical teams should represent a collaborative effort by the university, classroom teachers and Teacher Corps interns.

Clinical Team Delivery System

The idea to establish clinical teams was to aid teachers in synthesizing the information gained and to bring this information to bear on planning and implementing instructional programs in their classrooms. In this component individual children were the focus for the application of a rather complex diagnostic and prescriptive process.

The diagnostic/prescriptive plan included content and instructional technology variables. In clinical practice the process included the addition of multicultural and behavioral-management variables. If one thinks of a diagnostic/prescriptive process as being operationally defined in terms of the number of classes of variables considered, then the diagnostic/prescriptive process to be used continues to increase in complexity during clinical practice. A series of activities led to the establishment of the clinical teams. During the Summer of 1977, a number of issues and problems arose and a paper was prepared on the rationale, operation, organization, purpose and other important dimensions of clinical team development. This

twelve-page document was shared with the teachers to enable them to participate in making decisions about final establishment of clinical teams. Included in the document was a tentative assignment to one of seven clinical teams to be established in the target school. These teams included six or seven people each and were divided primarily according to grade levels. Everyone directly involved in the school and the Teacher Corps project was assigned to a team. □

Lansing School District/Michigan State University

Excerpt from the paper "Multiple Delivery Systems" by Henrietta Barnes, Joyce Putnam and Donna Wanous: RAC Conference, San Francisco, April 1979.

The Lansing School District/Michigan State University 10th and 12th Cycle Teacher Corps project has utilized a unique procedure for providing for the released time teachers require for inservice teacher education. By combining a preservice elementary education program with the inservice teacher education program, the educational opportunities of both groups can be optimized. Some background may be useful at this point to clarify this arrangement. Through a six-year cooperative effort involving Lansing teachers and administrators, Michigan State University undergraduate students in elementary education, and Michigan State University faculty, a programmatic preservice elementary program has been developed upon a research-based conceptual framework. This program, which is largely field-centered, features unified content-methods and practice, foundational principles which are systematically integrated throughout the students' course work and field experience, and competency-based performance criteria. Students are admitted into the program as sophomore pre-interns after participating in a detailed selection process. During the sophomore year, pre-interns spend two to three half-days per week in schools performing general instructional tasks and instructing small groups of students in content related to the campus content/methods courses. During the junior year, the pre-interns' field experience increases in amount of time spent and complexity of tasks performed as well as responsibilities assumed. By the third term of the junior year, pre-interns are spending four half-days a week in school and have taught both small and large groups in all content areas under teacher or clinic professor supervision. By the fall term of the senior year, students who are now in their for-

mal internship experience are ready to assume full responsibility for at least two half-days of complete instruction. When they begin a "normal" full day student teaching experience, the second or third term of their senior year, interns (formerly pre-interns) are ready to assume complete instructional responsibility for planning and actual instruction for the entire day for the minimum ten week internship experience.

The high level of expertise exhibited by these undergraduate students is due in part to the assignment of a clinic professor to each student. This Michigan State University supported staff member performs a number of valuable services for interns, teachers and the program. Critical among the tasks performed is the supervision of planned instruction, classroom management and personal interactions with immediate provision of constructive feedback. The clinic professor provides necessary linkages between the university and the public schools and between theory and classroom practices. Because interns have demonstrated their ability to participate as full team members with their cooperating teachers, many of the problems usually associated with released time for inservice teacher education are alleviated. Because the intern begins teaming with the cooperating teacher on the opening day of school, he or she is accepted by the children, parents and other staff as a regular teacher. Inservice schedules are coordinated so that clinic professors can be in the building and available in classrooms to assist their interns if problems should arise. Because inservice sessions are held within the school building or in a nearby building, teachers are always available to return to their classrooms if serious problems develop.

While both teachers and interns benefit from this team teaching arrangement, others profit as well. The presence of the intern provides unique opportunities for analysis and evaluation of teaching practices. Through the negotiation of objectives and strategies, both teachers and interns are encouraged to examine their assumptions and procedures in terms of pupil outcomes. Children also benefit from this arrangement since there is another concerned individual available to help provide educational experiences for them. Children are not only exposed to different and sometimes new ways of teaching and learning, but are generally able to receive more individual assistance with particular learning problems.

Released time for inservice teacher education is coordinated with the interns' senior year teaching experience. The arrangement described in Table 13 has successfully allowed teachers to engage in inservice activities.

Table 13
Released Time Schedule

	Fall	Winter	Spring
Group A: Half of the teachers at the school	Released two half days per week in the morning	Released two half days per week while intern completes internship teaching experience	Released one half day per week, intern is continuing to work with class
Group B: The other half of the teachers	Released two half days per week in the afternoon	Released one half day per week, intern is continuing to work with class	Released two half days per week while intern completes internship teaching experience

Inasmuch as the delivery system one uses and the structures one creates depend largely upon the outcomes one has in mind, it is important to describe those goals which motivated the development of this released time delivery system. First, both pre- and inservice teachers should become autonomous decision-makers regarding their curricula. Second, teachers should become lifelong learners who have a sense of professional competence and the feelings of pride that accrue from that knowledge. Third, an opportunity should be provided for teacher educators and beginning teachers to gain a reality base for their conceptions of professional teaching. Knowledge which is useful for developing professional teaching competence, then, would be information accumulated from experiences designed to help teachers translate concepts into internalized action schemas.

Pursuit of the goals stated above led to an integrated professional development model for initial and continuing teacher education. The delivery system used has emerged from experiences designed to promote teacher development. The model encompassed professional development for preservice teachers, inservice teachers, and teacher educators.

The challenges of an integrated professional development model were many. A primary question, however, was how to maximize the opportunity to learn from each other and have a coherent program that is conceptually as well as actually integrated. A major assumption of the designers

was that the learning experiences for each unique set of participants were optimized when all participants engaged in a set of simultaneous learning experiences. The model was predicated on the notion that the real world context of the classroom and school is the center of a professional development delivery system that allows for shared decision-making on how teaching and learning for any particular set of students might be improved—be they children or adults.

Explanation of the Model and Related Delivery Systems

Through a carefully sequenced set of educational experiences professionals are taught to become autonomous decision-makers. These experiences are designed on the assumption that abstract verbal explanations of theory presented in the "ivory tower" of the college campus cannot be expected to be transferred to the complex environment of most public school classrooms. What is needed is an instructional approach that presents the subject matter a teacher needs to know and is able to handle along with the methods for teaching and the opportunities for practice in a unified sequence. For example, teachers might study fractions (content), check to be sure they can work fraction problems, plan lessons to teach fractions to a group of children in their field placement (classroom), teach the planned lesson, receive feedback from others and reflect on the experience in a continuous learning model. This unified content/methods and practice sequence is quite the opposite of many college course sequences which typically teach all the content (usually done by a department or college outside of Education) with methods taught by yet another instructor at a later time, and practice waiting until student teaching (in the case of inservice or graduate work it is usually not provided at all) when all content must be simultaneously taught to an entire class.

It was found that an instructional sequence which gradually introduces a teacher to a content area or sets of related content areas such as instructional design, mathematics and classroom management, and allows for the sequential accommodation of that content through gradually intensified field experiences is effective for both pre- and inservice teachers. If teachers are to adopt new ways of thinking and doing, provisions must be made to facilitate initial learning about these ideas and provide ample opportunities for suitable practice and feedback.

These experiences were additive in nature and, thus, it was the task of the teacher education program to sequence instruction and experiences so that each set of experiences cumulatively enriched the teacher's profes-

sional abilities. In general, nothing was taught in isolation. Rather, teachers were expected to apply knowledge learned and internalize patterns of action. What began as separate content gradually became autonomous behavior grounded in theory and a conscious rationale.

Regardless of the content being taught, certain conditions needed to be present if the suggested instructional sequence was to be accomplished. These conditions were:

1. Clear content definitions (facts, concepts, principles, ideas and skills) were presented.
2. Real world exemplars and non-exemplars were available. These were as concrete as possible.
3. Discrimination practice was provided. Here the learner chose between exemplars and non-exemplars to demonstrate concept acquisition. Again, if real work examples were not accessible, role plays and simulations were useful in increasing the likelihood of transfer.
4. Opportunities to socialize about the new learning were essential for concept acquisition. Sharing perceptions and clarifying points of disagreement were important as teachers fitted new content into existing conceptions of teaching.

In order to function with minimal problems, the delivery system incorporated both university and school district facilities. For example, the study of all theoretical work was tied to classroom practice. Thus, teacher educators and pre- and inservice teachers had opportunities for common classroom observation in schools where access to classrooms was available. Space for processing classroom experiences was also available. When sessions were held on the university campus, rooms which allowed for a variety of activities (e.g., small group organization, role plays and whole group demonstrations) were scheduled.

A variety of strategies was generated through the various combinations of formats and activities which promoted learning of theoretical constructs and their practical applications. For example, role plays done in small groups, triads and dyads were helpful in learning procedures, gaining skill in practical application and understanding the effects of a strategy as a participant. Classroom demonstrations observed by small groups, triads or dyads helped teachers by providing concrete examples of theoretical constructs being studied. Abstract ideas such as Piaget's descriptions of how children think when they are at various stages were much easier to com-

prehend when a teacher was able to actually question children who were at a variety of stages. Having concrete experiences with different levels of thinking, the teachers were then better able to transfer Piaget's ideas to the selection of content and activities for children.

Directed Practice and Reflection

As new content was acquired, it was important that teachers had opportunities to apply this knowledge in real world settings. The teachers tended to move back and forth between the "learning about" phase and the directed practice and reflection phase as they became more sophisticated about their practice.

The necessary conditions for the directed practice and reflection phase included:

1. Initial practice was directed and carefully planned for a simplified real world setting. That is, lessons were taught to small groups of students, and teachers were responsible for less of the total situation than would normally be their concern. As applications of the content became more familiar, the size and complexity of the teaching situation were gradually increased.
2. Through opportunities for reflection, teachers considered alternative ways of applying content and varying outcomes that might be expected for each. Initial classroom trials were accompanied by opportunities for corrective feedback. Teachers needed to know what they were and were not doing so well. Whether lessons were successful or not, reflection helped teachers see both intended and unintended consequences of instruction. Opportunities for feedback and encouraged reflection were essential to the development of the self-evaluation a prerequisite to autonomous decision-making.

Practice as used above means the implementation in a school setting of a particular concept, principle, theory or skill which was the focus of previous instruction. Implementation activities included: instructing children; pre/ inservice teacher and child role plays; pre/inservice and or teacher educator demonstration; pre/inservice teacher and child simulations; and on-site planning which allowed for assessment and evaluation of curriculum, environment, materials, and discussion.

The dyad and triad format for directed practice activities was also

beneficial to children. For example, when a clinic professor, inservice teacher and preservice teacher collaboratively planned, taught and reflected on learning outcomes, all three participants grew professionally. In addition, the children benefited from participating in quality experiences which were the result of the collaborative work of professionals.

Demonstrations for other preservice, inservice or teacher educators were seen by project participants as contributing to their intellectual growth and positive affect about the project. First, the demonstration activity contributed to their growth by requiring the demonstrator to fine tune skills and be able to articulate the operating conceptual framework. Second, demonstrations provided concrete referents for the observers and a common experience for future discussions. Third, positive feedback about one's performance contributes to the internalization of professional development as a rewarding activity.

Reflection as used earlier means thinking about intended and unintended lesson outcomes of practice activities directly related to the content studied. Reflection on one's practice was seen as an important contributor to the achievement of the goal of autonomous decision-making and action. Within this delivery system, activities were designed to provide the opportunity for structured reflection. These reflection activities included discussions, stimulated recall, role plays, writing and sharing.

Reflection activities usually occurred in dyadic, triadic, or small group formats. It was in these settings that the teamed practice experience actually paid off. One member of the discussion group acted as the reflection stimulator for another member of the team. The reflection stimulator asked clarifying questions, took part in a role play, shared feelings and perceptions and assisted with tying the real world experience to the theoretical constructs which were studied. Pre- and inservice teachers reported that role plays done with a person who is knowledgeable about the content being studied and who is present during a practice session were helpful in learning alternative teacher behaviors, understanding a child's point of view and increasing teacher skillfulness.

The preservice/inservice released time delivery system incorporated 175 half-days of classroom experience for undergraduates. Of this time, across three years, each preservice teacher spent approximately 140 hours in directed practice and reflection with a teacher educator. This time was spent in a number of activities including team teaching, observing, reflecting and planning. The delivery system also incorporated from 32 to 60 hours per year of one-on-one contact for inservice teachers to work with another teacher(s) or teacher educators. Directed practice and reflection

time for teachers was arranged in two ways. First, teachers were teamed with teacher educators an average of 25 hours per year. Second, teachers arranged their own teaching schedules to incorporate a minimum of one directed practice and reflection session per week. Many of the practice sessions were teamed with a preservice teacher or another teacher.

Integration into Decision Making and Action

As a pre/inservice teacher developed skill in directed practice and reflection, he or she began to integrate relevant content into a body of professional knowledge which can be represented as integrated decision-making and action. These activities included: (1) self evaluation, sometimes making use of another adult to help sort information; (2) problem identification and solutions; (3) phasing out of project support systems; (4) provision of continuing intermittent reinforcement; (5) sharing practical experiences; (6) initiating requests for feedback; (7) demonstrations of teaching for dissemination to other teachers and teacher educators; and (8) teaching others.

Each activity was important to the individual teacher's continued professional development. Development of a delivery system which will continue to function after the project leaves is important but no more so than the appropriate withdrawal of project activities.

Delivery systems must facilitate reliance on relationships which will continue to function after the project is gone. For example, the delivery systems described provided the opportunities for teachers to develop the role of teacher as teacher educator. The developmental experience and enactment of the role, while functional for project dissemination purposes also provided inservice teachers with opportunities to work with peers in their own building. The ways in which they worked together established credibility, trust, knowledge and skills which can be continued after the project ends. These delivery systems also incorporated a means for: (1) the gradual withdrawal of project staff prior to the end of the year, (2) continued and independent work by both preservice and inservice teachers, and (3) facilitating the final transfer from project staff support to peer and district administrative support.

In summary, we have presented a view of delivery systems which is firmly built on the assumption that the vehicles used, the activities selected, the way in which teacher education plans are made and carried out,

whether for pre- or inservice teachers, must reflect the outcomes one hopes to achieve. In the case described, that outcome is increased professional competence for all participants, prospective and practicing teachers as well as prospective and practice teacher educators.

Who

In the previous section, two models for releasing teachers during the professional day were presented as possible answers to the question of *when* staff development can occur. This section deals with a second question concerning any delivery system. The question is, *who* should be primarily responsible for the planning and implementation of inservice programs?

In the past staff development has usually been planned and implemented by higher education faculty and/or school district administrators, not by classroom teachers. "Even in the last 40 years, little has happened to alter the concept that 'authorities' rather than teachers should determine the purposes, content, and methods of inservice programs" (Edelfelt and Lawrence, 1975). The needs of teachers, school district thrusts, and community concerns must be developed concomitant with the content and type of training teachers are to receive. There needs to be an orchestration among all concerned which should "...make the training seem reasonable in terms of (teachers') personal life-space, contact with training in settings which are appropriate to the training substance, and finally, training staff who are in a situation such that they can help the teacher act on what is taught" (Joyce, 1976).

Also, a delivery system must be one that is not fragmented or taught in isolation. Provisions must be included to provide follow-up. In other words, there is a need for continuous professional development. It has become apparent that teachers feel the need for integrated professional development which presents a concept, skill, or activity, provides an opportunity to practice the acquired knowledge, and provides classroom interaction with the instructor or instructional staff and the classroom teacher as the acquired knowledge is being implemented.

The Stanford University/Herbert Hoover Junior High School and the Murray State University/Hopkinsville Middle School Teacher Corps projects in their delivery systems have addressed this concern of *who* should plan staff development.

Stanford University/Herbert Hoover Junior High School

Excerpt from the paper "Down from the Ivory Tower: A Model of Collaborative In-service Education" by Susan Stavert Roper and Robert R. Nolan: Stanford Center for Research and Development in Teaching, School of Education, Stanford University.

The Teacher Corps project sponsored jointly by the School of Education at Stanford University and Herbert Hoover Junior High School, San Jose Unified School District, San Jose, California, has developed a model of a collaborative inservice education program for teachers. In this model, the power to determine the content of the inservice program resides with teachers. University faculty and graduate students assumed the role of resource people and group facilitators to help teachers devise and implement a program that best meets their particular needs.

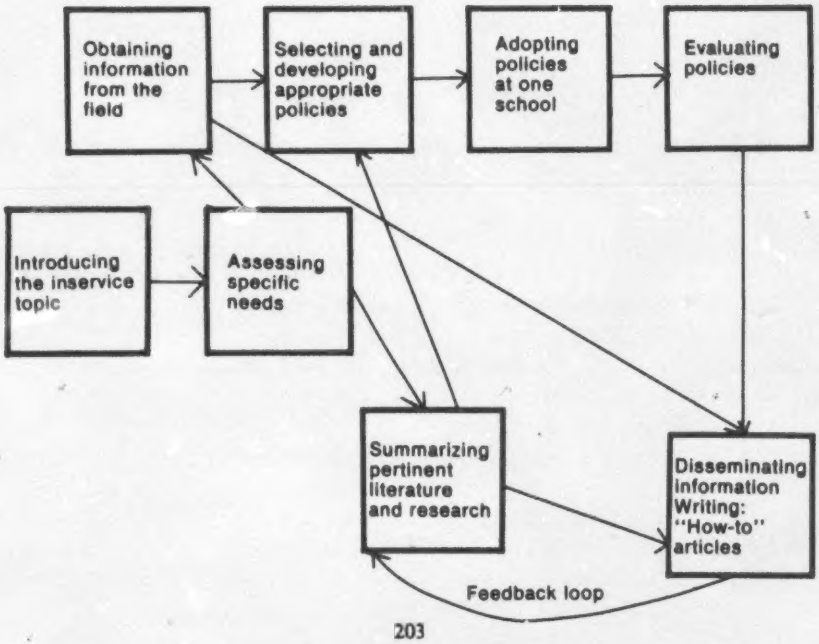
The Hoover and Stanford staff members who planned the Teacher Corps project believed that inservice education would be more effective if teachers had a majority voice in determining the activities in the program. They also believed that assuming responsibility for the direction of the project would promote greater involvement and interest among the teachers. They knew that teachers are wary of inservice education. Too many programs have been poorly planned, underfinanced, and unrelated to the needs of participants.

In designing the Hoover/Stanford Teacher Corps project, Hoover staff and Stanford faculty who were involved in writing a proposal for a Teacher Corps project knew that a program dominated by outside authorities or directed toward only a few teachers would not be effective. Thus they designed a comprehensive, school-wide program in which teachers had the voting majority for most decisions. Most decisions were made through work/study teams composed of teachers, aides, Hoover administrators, parents, Stanford faculty members, and graduate students. There were eight work/study teams at Hoover: four in subject areas, including language arts, social studies, math and physical education, and four in the "innovative" areas of bilingual education, multicultural education, community involvement, and utilization of open space. Most of the Hoover staff belonged to two of these work/study teams. Each team also had a faculty advisor from Stanford and a research assistant. Hoover staff members received released time each week for work/study team meetings.

The program was comprehensive, due to both the overlapping membership on the work/study teams and the overlapping concerns of each team. For example, the math, social studies, and language arts work/study teams were very closely coordinated with the work of the Open-Space Work/Study Team, since the teachers in these subject areas were preparing to move into a new open-space facility. While there was considerable formal and informal coordination between the teams, each had a great deal of autonomy and each functioned somewhat differently.

The work of the Open-Space Work/Study Team is used as a case study to describe how this model of collaborative inservice education works. The model was implemented by the team as they prepared for the transition to open space. Since universities are relative newcomers to field-based inservice education, and school staffs are also novices in working with universities to implement school-wide inservice programs, it was hoped that this model would suggest some useful strategies for improving inservice education. It provides one picture of how collaboration between universities and schools can and did take place (see Figure 12).

Figure 12
A Model of Collaborative Inservice Education.


Obtaining information from the field
Selecting and developing appropriate policies
Adopting policies at one school
Evaluating policies
Introducing the inservice topic
Assessing specific needs
Summarizing pertinent literature and research
Disseminating information Writing: "How-to" articles
Feedback loop

Introducing the Inservice Topic

The first step in this model is to brief the relevant community on the inservice topic. This is the time for inservice educators to outline the dimensions of the topic and to correct any misconceptions. For example, at Hoover the introduction was a short presentation to teachers, aides and administrators explaining that open space is an architectural term, not an instructional program, and pointing out that studies disagree as to the effect of open-space on student achievement. The project wanted to assure teachers that their instructional programs need not be totally changed in the new environment and that student achievement would not automatically decrease in the open-space building. A similar presentation was made at a parents' meeting. These introductory presentations ensured that everyone was aware of some basic facts about open-space.

Assessing Specific Needs

The needs assessment is the most critical step of the model because it determines the agenda for the subsequent steps. This model simply does not work if participants do not perceive or refuse to admit that the problem under consideration actually exists in their school. This is the time to gauge the level of interest and commitment of all participants. If it is low, we suggest that university participants adopt a different approach to inservice education. This is a problem-centered approach, and both school and university personnel must initially agree that there is a problem.

Too often needs assessments are conducted at considerable cost in time and money and are never used by anyone except those who write a request for further funding. In this model, however, a needs assessment directs the activities of all the subsequent steps in the model. It is important to stress that needs be identified by teachers, administrators, parents and students, and not simply by inservice educators. Although there may be common needs among faculties preparing to move into open-space schools, the idiosyncracies in each school produce different needs as well, and require somewhat different inservice efforts. By using needs assessment to set the inservice agenda, and by relying on participants to identify needs, the power over the content of the program is shifted from inservice educators to participants.

Once needs are expressed, participants are asked to rank them according to importance. If this is done at an open meeting, some disagreements can be resolved on the spot, and others at least aired. The result

is a list of four or five key needs that define the activities of both the teachers and the inservice educators for the initial stages of the program. This is not to say that other needs that arise subsequently will be ignored, but that the high priority needs are the ones with which everyone begins.

At Hoover, the school staff identified their concerns about moving to an open-space school and ranked them during an inservice meeting before school opened. Parents contributed to the list of concerns at an evening workshop. Students also had a voice in the process. When presentations were made on the new open-space building to each of the social studies classes, students were asked to share the problems they thought might arise in the new building. Since over two-thirds of the students had attended open-space elementary schools, their ideas were especially valuable. They not only warned about a few points previously ignored, but provided ideas on how to deal with some of the more common problems. For example, students suggested a number of nonverbal signals teachers can use to alert students to quiet down.

The needs assessment at Hoover identified four primary concerns: (1) noise and discipline, (2) student movement, (3) use of the media center, and (4) parent and student orientation.

Summarizing Pertinent Literature and Research

The next step in the model, summarizing pertinent literature and research, was conducted simultaneously with obtaining information from the field. In both of these tasks, the needs assessment provided the structure. The task was to find research that would provide useful information in dealing with high priority needs at Hoover as well as to identify field sites and practitioners who could help.

Most research did not give the Hoover staff the kind of assistance they wanted. One reason was that almost all the studies reviewed were *descriptive* rather than *prescriptive.* For the most part, researchers attempted to answer the question "In what ways is open-space different from self -contained classrooms?" While this is important, it does little to answer the question, "How can teachers and students function effectively in open-space schools?" Another reason was that complex statistical analyses, technical terms, and often dull prose of these studies were not likely to make the teachers enthusiastic consumers of research.

Despite the difficulties some useful research and pertinent literature

were found. The Stanford staff summarized the major points of these articles, categorized them according to the identified needs, and prepared a separate summary for each need.

Obtaining Information from the Field

There were also problems in relying on practitioners to provide information useful to teachers. Very few administrators or teachers publish, so their expertise is unwritten. Moreover, there was difficulty locating teachers and administrators who would be helpful. There was no clearinghouse in the area which identified teachers and administrators who were implementing effective instructional programs in open-space schools. In the search for elusive "experts" it became clear just how isolated from one another teachers and administrators are. The frustrating part of this search was that there were some practitioners "out there" who were doing a good job in their open-space schools, but unable to be found.

A long-term method to help identify practitioners who can help solve a particular problem is a "resource bank." Participating teachers and administrators specify their areas of competency and times when they will be available for helping their colleagues. A central coordinator matches requests for assistance with people who have the appropriate skills. This can be done on a school, district, or even state level and will greatly reduce the time and effort it presently takes to tap the expertise available in our schools. The California Teacher Corps Network has recently started a Resource Bank program.

Selecting and Developing Appropriate Policies

Selecting and developing appropriate policies is the logical next step in the model. But logical as this seems, it appears to be an unusual sequence in inservice programs. Nicholson and Joyce (1976) conclude that "traditional inservice teacher education programs have consisted almost entirely of information-gathering activities....Programs that stress utilization of that information...have been distinctly in the minority."

To facilitate the decision-making process, the Open-Space Work/Study Team divided into a number of subcommittees. The subcommittees were charged with making recommendations to the whole team. Each subcommittee was assigned a different high-priority need. For exam-

ple, one subcommittee was charged with formulating policies to minimize noise in the new building; another to recommend procedures for effective use of the media center and procedures for student movement; and a third to plan student and parent orientation to the new building. The subcommittees sifted through the information, discarding those practices they thought inappropriate and adapting ideas from others as they wrote their recommendations. In some cases, they developed procedures not mentioned either in the literature or by visiting practitioners. For example, the social studies teachers developed a behavior checklist on which new student behavior required in the new building was identified. Students checked off each item on the list as they completed it and turned it in to their teacher every day of the first week after the move to the new building.

The university members of the Open-Space Work/Study Team roles were mainly facilitators and resource people. The facilitators made sure that each subcommittee chairperson had the relevant summaries of both research and practices, and were occasionally called on to provide greater elaboration of these summaries.

Adopting Policies

The policy adoption stage occurred in two phases. First, each subcommittee chairperson presented the subcommittee's recommendations to the Open Space Work/Study Team. They were discussed and voted on. Second, recommendations from the Open-Space Work/Study Team were presented to the faculty for approval. Each recommendation was voted on separately. The approved recommendations included regulations for both teachers and students in the new building.

The work/study team also presented a number of informal suggestions to the faculty. For example, the subcommittee on minimizing noise recommended that all teachers begin each period with a quiet activity. But subcommittee members did not suggest that the practice be made mandatory because of their sensitivity about encroaching on the professional prerogatives of individual teachers.

It is important to point out at this step how easy it is to exclude relevant people at the policy-making and policy -adopting stages. At Hoover, students and parents received an introduction to open-space and participated in the needs assessment. But only the administrators, teachers, and aides were involved in the policy formulation and adoption stage. This is a weakness in this program and it is recommended that it be avoided by

others. Parents and students have more commitment to policies that they have helped formulate. Moreover, valuable ideas at the formulation and adoption stages are lost when relevant parties are excluded.

Evaluating Policies

In most inservice programs, participants assess the presentation made by the inservice educators, usually immediately after a presentation. Although it may have some value to the inservice educator in improving his or her performance before the next consulting engagement, this type of evaluation does not tell the inservice educator if any suggestions were implemented or if they were successful.

In this model, evaluation means assessing the results of the inservice program as well as the quality of presentations. At Hoover, besides the usual evaluations of workshops and presentations, there is an adoption of a number of different kinds of evaluation activities. One is interviewing students after they have been in open-space for at least a month to ascertain their attitudes toward the open-space environment and its management (Gauvain, Roper and Nolan, 1977). Another is asking teachers to reconsider each of the policies they have agreed on and to indicate whether they want them to be continued the following year. A third is investigating the amount and type of teacher coordination in the new building to determine whether open-space actually did facilitate coordination.

It would be remiss not to point out that evaluating the effects of a program based on this model is a difficult job. Since there are different levels of participation among staff members, an evaluator cannot assume that there will be a uniform impact. Moreover, in a collaborative venture it is difficult to determine which individuals made the greatest contribution to program processes and outcomes. In this situation it is convenient for participants to relinquish responsibility for failure and take credit for success.

Disseminating Information: Writing "How-To" Articles

Since this collaborative model of inservice education was implemented in only one school, much of the information gathered was set aside as inappropriate to the specific site. Some of the discarded information, however, may be appropriate to teachers and administrators in other schools. It is important to prevent this information from getting lost:

policies and suggestions found successful at one site should be passed on to schools in similar situations. Thus the final step in the model is writing articles for other teachers containing practical guidelines for functioning effectively in open-space schools.

Two articles have been completed, "How to Survive in the Open-Space School" (Roper and Nolan, 1976) and "How to Succeed in Team Teaching—By Really Trying" (Roper and Nolan, 1977). These articles incorporate the successful practices adopted at Hoover as well as promising practices observed elsewhere or found in the literature. The feedback loop on the model (Fig. 12) shows how these articles will become part of the literature on open-space and save the time and energy of subsequent inservice educators and teachers who are preparing for the transition to an open-space environment.

Murray State University/Hopkinsville Middle School

Excerpt from the paper "Lessons Learned" by William O. Price, Jr. : RAC Conference, Chicago, February 1979.

The primary focus of the 10th Cycle Teacher Corps project at Murray State University/Hopkinsville Middle School was the development of an instructional program built around the concepts that almost all children possess unique talents of a high order. Furthermore, these talents can be identified and enhanced, and that success in one school endeavor can lead to increased success in others. The systematic linkage and development of these concepts into a practical school program, the clarification and acceptance of teacher -pupil roles in such a program, and the development of appropriate materials and teaching strategies for such a program formed the basis for two years of cooperative effort on the part of college and local school faculty.

A significant development in this project was the emergence of the concept of responsive inservice education as a viable university service delivery system. Subsequently, it was institutionalized as an operational, field-based, responsive graduate degree program. This program is difficult to characterize briefly. The concept involves the collaboration of the university, the local district administration and the local teachers in the establishment of a school/staff renewal program. This school/staff renewal program must be sufficiently responsive to local concerns to

satisfy staff development needs, and at the same time retain integrity as a legitimate university degree program. In the Teacher Center approach, a key issue is governance. In the responsive program, the key issue is negotiation; honest, head-butting negotiation. As the concept of field-responsive inservice education emerged, negotiation became a way of life. The focus of the program is determined neither by the college professor or the classroom teacher, but is negotiated in both content and form. This inservice program required on-site decisions about objectives, time requirements, amount of credit, and possible activities. In the traditional college -based degree program, the classroom teacher is injected into a program which is basically pre-determined in terms of substance and format. One is removed, for almost the total period of instruction from their own school environment and placed in the college classroom. The teachers are isolated from their peers and their support base, and subjected to a program that is built around the notion that if teaching behaviors are changed, schools will be better places for students. Teachers know, however, that regardless of what is heard or learned, they are still going back to the same school, the same classroom, the same principal and fellow teachers. Also, the college instructor is not going there. What must result from such an encounter is discussion of relatively "safe" topics which can be generalized in the neutral environment of the college classroom. The sum total of this experience satisfies course requirements for graduate programs specified by the university or some other agency. Neither instructor nor teachers gain meaningful insight into the needs of the other because neither sees the other in the real school environment.

Field-based programs, although they usually occur on the teacher's home ground, typically represent little programmatic change from college-based programs. The college professor is on-site, and may spend some time in the school or classroom, but the program emphasis is still upon the predetermined curriculum and objectives of the university graduate degree program. Although variations in activities and evaluations might occur, basic decisions concerning substance, format and credit are determined by whatever forces (often political) that have traditionally shaped such graduate programs.

This experience has resulted in a unilaterally determined inservice education program with a number of drawbacks. For example, if it is important to actually see resulting change in schools, teachers must be involved in determining staff development content. When teachers are not involved with the inservice program from its inception, the phenomenon of teachers merely "taking up space" in the program becomes much more

common. It is critical that if responsive programs are to create change in classrooms, that a sense of partnership must develop. The effectiveness of negotiations regarding the nature of inservice programs is a good indicator of the degree to which change has occurred in schools (and also in the colleges of education). As professors of education have had to discover, sometimes painfully, there is a need to insure that negotiation and change will be present in the program.

Another thing that had to be done to promote change was to move in the direction of increasing individualization of inservice activities. The more indivdualized the programs are, the more productive they seem to be. However, the individualization itself must be based on agreements reached between the teaching faculty and the responsive team on the program's basic goals. The experience of this Teacher Corps project was that the greater amount of contact between professors and teachers in visitation and consultation, the more changes occurred in the local school program. As the relationship between the teacher and inservice faculty member comes closer and more cooperative, in terms of focusing on real life problems, the activities and projects in the responsive graduate program tend to become increasingly intensive and demanding. The level of tension in the program increases as it becomes more meaningful and important to the participants. And the possibilities for frustration in the faculty increase as pressure for individualized activities begin to conflict with pressures for a unified set of activities which will meet the needs of the college faculty for a cohesive graduate education program.

Negotiation becomes a critical factor in dealing with these tensions and frustrations. As problems almost inevitably effect groups and individuals in all parts of the program, at the school site and the college of education they must be confronted.

Another factor that was found to be important in promoting negotiation and change, has been the development of procedures which encourage significant contact with teachers in their classrooms. As far as making changes in teaching behavior, the impact rate soared as professors started spending more time in the classroom. Activities which focus on professor-teacher interaction in the teacher's classroom encourage cooperation and cohesiveness between the university staff and the teaching staff. In contrast, large-group activities tend to result in increased professor time spent in controlling and directing behavior.

Also gaining importance in this staff development program has been the phenomenon of teachers interacting with professors as a group or a block, rather than as individuals on many issues. Typically in graduate

education programs, matters of policy concerning credit and work requirements, for example, are worked out between the individual student within the context of university or department rules. It was found initially that although the official policy had been to continue this traditional mode, it was difficult to carry out this program. The "instant feedback" teachers gave each other on their interactions with reinforcement staff made it difficult for individual problems to remain individual. In a sense, the need to confront "public opinion" on many issues, forced the project staff to deal continuously with a number of teacher concerns which might have been ignored in a more typical situation.

The need to work as a team has caused the college faculty members to feel a loss of autonomy and, at times, a compromising of personal values and standards as program decisions have had to be made. On the other hand, there have been feelings of exhilaration as great strides were made by teachers and teacher education faculty towards more sophisticated program design and implementation. There is no doubt that the use of a field-responsive approach to graduate education and staff development has forced some new thinking by college professors in this new situation.

One of the most troublesome aspects of this approach has been in inducting university faculty members into the responsive program. In expanding their functions in the field-responsive program, university faculty have gone beyond the role of teacher trainers and become change agents for quality education. This ambiguous role has occurred with doubts about personal capabilities as well as concerns about the college of education graduate program's capability to fit the emerging field-responsive way of working with teachers.

Typically, professors have had tremendous latitude in the way they operate their courses. Working within loosely defined guidelines, they have been free to structure content, develop grading criteria, and serve as final arbiters on questions of theory or method. In interaction with the larger college faculty, professors have had the role of autonomous professionals, accountable for their own actions. When professors begin to operate in field-responsive staff development programs, however, much of this autonomy must be sacrificed for effective team functioning and the success of the school change program. Grades, objectives and activities must be arrived at through team functioning. Because of the need to negotiate as a team with the school faculty, there must be a high level of agreement among the inservice team members. If this agreement does not exist, conflict will surely surface at the school site and cause problems as teachers respond to ambiguities they sense in the program implementation—

especially in terms of requirements and grading criteria. The loss of autonomy inherent in team functioning challenges the concept that many staff members have of themselves as a "professor" and requires a new accomodation in terms of the requirements of the field-responsive situation.

All that has been stated earlier, in relation to individualized programs, negotiation and change, and a team approach to program development and implementation, points to the fact that a different way of conceptualizing university graduate programs is viable. It is very difficult to carry on a field-responsive program within the confines of a three -hour format, making it almost inevitable that conflicts will arise between the directions taken by the inservice team and an individual college of education faculty member's understanding of what typically takes place in particular courses. This problem has not yet been fully dealt with. In a field - responsive program there is a real need to be more flexible when identifying goals and goal attainment within the overall college of education graduate program. At this time elective courses are not seen as an answer. The over-use of these toward ends which the college of education and its faculty can certify as significant and coherent in terms of complexes of skills and knowledge. The general college of education faculty must approve of field-responsive programming, because all of the members of the field-responsive program fill two roles—that of field-responsive team member and also that of college-based faculty member. The need to be able to take "smaller bites" of the graduate program, and to be able to add these "bites" up to a complete graduate program is important. At the very least, there is a need to routinely offer credits in variations other than three hours, so that the amount of credit given can match the amount of work undertaken by the participants and the responsive team.

The work in the Murray State University Teacher Corps project has identified several important components of the process by which specific objectives and activities were agreed upon. The first component, was the need to identify the context in which the field-responsive program would function. The context refers to the constellation of problems and issues that the program will focus on. In identifying the context of courses using terms compatible with those used in the regular college graduate program, it becomes possible to select specific content which would be applicable to the specific field-responsive program. The selection of content in reference to context, also keeps all members of the university staff in the same area when talking about possible activities and objectives. The second component was the identification of the short term problems or needs that were to be addressed in particular parts of the program, and the initial statement of

inservice objectives. This was done both through needs assessments, surveys of the teacher faculty, and through reference to a steering committee representative of the university faculty. The third component related to the organizing of activities by the inservice team and the negotiation of these activities with the teacher steering committee (in lieu of negotiation with the entire teaching faculty...a process which we see as being prohibitive) as to the final form of the objectives and activities. The fourth component was the process of deciding on the form that credit and/or certification would be given. In a sense, the fourth component consisted of placing the negotiated objectives and activities into perspective against the overall graduate program.

Where

While collaborative planning and decision-making as presented in the last section are integral to the delivery system in staff development, these concerns are compounded when distance becomes a factor. Since not all school districts are located contiguous to an institution of higher education, the question of providing a delivery system for these professional teachers is of concern.

Generally in the past, teachers teaching in a school district located a considerable distance from a college or university campus have had to commute to take a graduate course. This "commuting" to take a class, often requiring a three-hour drive one-way, can lead to dissatisfaction or complaining about the instructor or the course. But, as Joyce (1976) states, "It is our impression that in complaining they are taught by irrelevant personnel, teachers are partly complaining about the circumstances in which they meet those personnel." Distance need not and should not be a consideration in the phrase, "circumstances in which they meet."

Delivery systems have been developed and implemented in which meaningful staff development and graduate level courses are offered to the teacher at the local school district, regardless of distance.

The Emporia State University and West Virginia College of Graduate Studies Teacher Corps projects have addressed this question in their delivery system.

William Cole

Emporia State University Teacher Corps Project

Excerpt from the paper "The Adaptation and Adoption of Research and Development Products for Institutionalization of Change" by William Quirk and Wayne Bergman: RAC Conference, Chicago, February 1979.

The Emporia State University Teacher Corps project used the Far West Laboratory "mini-course" material as a basis for developing a Field-Based Master's Degree Program. This field-based master's degree program was designed to meet the needs of fully employed teachers and supervisors. The curriculum materials and delivery system developed for the field-based program were a direct result of the field research conducted by the Emporia State University Teacher Corps project.

A specific inservice program was developed in response to a desire of teachers and subsequently of school administrators in six rural school districts in eastern Kansas. These schools, and those which later became involved in the Emporia State University Teacher Corps project, were located within a one hundred mile radius of Emporia.

Teachers in rural districts have a desire for inservice coursework to improve their teaching competency. A complicating factor in the case of teachers in rural areas is the availability of coursework. In Kansas, the nearest institution of higher education may be as much as a three-hour drive, one-way. At the end of a full school day, teachers are reluctant to spend four to six hours at the wheel of an automobile interspersed by two to three hours of class knowing full well that they have a full day of school again the next day.

The Teacher Corps program responded to the need of its rural districts with a two-pronged program: (1) self-paced mini-courses developed by the Far West Laboratory for Educational Research and (2) instructor led courses which are taught on-site by members of the regular faculty at Emporia State University. This response represented a significant change from the traditional development of a new on-campus course offering or informing a group that a course already existed, all they had to do was enroll, and the university would solve all their problems.

The type and nature of effective inservice education that full time teachers in the field desired and would support became evident to the Teacher Corps staff. In addition to these wants, the staff realized that many teachers would support a program offering master's degree credit for their efforts and the Emporia State University Field-Based program was designed to incorporate the following criteria:

(1) Decision-making processes are based on cooperation between all major interest groups, that is, school district, college/university, and teacher organization.
(2) Inservice education is directly related to curriculum development.
(3) Inservice education is directly related to instructional improvement.
(4) Inservice education is based on the needs of students.
(5) Inservice education is based on the needs of teachers.
(6) Inservice education is based on the needs of the school program.
(7) The techniques and methods used in inservice education are consistent with fundamental principles of good teaching and learning.
(8) Research/evaluation is an integral part of inservice education.
(9) All those who participate in inservice education are engaged in both learning and teaching.
(10) Adequate personnel are available from the school district and college/university for inservice education.
(11) Adequate materials are available.
(12) Inservice education makes use of community resources.
(13) Professional growth is seen as a continuum from preservice preparation through career-long professional development.
(14) The inservice education program reflects the many different ways that professionals grow.
(15) The inservice education program addresses the many different roles and responsibilities that a teacher must assume.
(16) Inservice education is related to research and development.
(17) The respective strengths of the school district, the college/university, the teacher organization, and the community are used in the inservice education program.
(18) Internship and student teaching experiences are used for analysis and study in the inservice education program.
(19) Inservice education is available to all professional and paraprofessional personnel.
(20) There is a reward system for teachers, administrators, and college/university personnel who engage in inservice education programs.

Through the adaptation and packaging of research and development products for inservice instruction it was found that the expressed concerns of area educators for practical course work and efficient use of their time

could be accomodated within a degree program without sacrificing quality. It was observed that successful inservice education must be practical, process and skill oriented, providing for practice and mastery within the teacher's classroom, while being accommodated within the school day. Materials must be self-contained, transportable and the instructors first rate and flexible. All services had to be provided in the field.

Self-contained transportable instructional packages were developed or adapted to provide materials for 51 graduate hours of new courses that are substituted for the core and elective requirements of the regular on-campus Curriculum and Supervision and Master Teacher Degree programs. The combination of skills taught in the courses, including needs assessment processes, instructional skills, and supervisory procedures were combined to maximize individualization of the program. Effective human relationships including understanding of student behavior was an integral part of all instruction.

Some of the courses developed were similar in content to the core courses in the regular Master of Science degree. They included some similar content and in one or two courses similar processes. The major differences lie in the process and practicum nature of all field-based courses.

Instructor Led Courses

Needs Assessment was a series of three courses that individualize the process of goal refinement. The participants developed educational goals and curricular objectives and criterion referenced instruction for students of his or her school. The course instructor involved the teachers in a variety of activities and simulations that prepared them to replicate these processes in their school. Mastery of Needs Assessment Processes provided skills useful for curriculum development and instructional planning.

Two courses that were designed to aid a teacher in developing and implementing instructional plans were Teaching Learning Models and Instructional Learning Stages. Learning Stages involved the participant in analysis of his/her students growth pattern for the purpose of developing learning profiles for each student. The intent was to design instruction for individual students based upon an accurate knowledge of their social, emotional, intellectual and physical growth. Teaching Learning Models required the teachers to model a number of teaching strategies based upon specific learning theories. These courses made it possible for the instructor to personalize learning. Instructors involved teachers in a process of learn-

ing that gave them a sense of immediacy and importance which was necessary to insure the continued use of the skills learned.

Supervision of Instruction and Research Using Problem Solving are two courses that addressed instructional and curricular improvement. Supervision involved the supervisor in a process designed to help teachers improve instruction. The analytical interpersonal skills necessary for a successful supervisory program were practiced in a peer's classroom. Research Using Problem Solving was concerned with the skills of problem solving and proposal writing.

Knowledge of one's school and skills of interpersonal communication are essential for effective curriculum development and instructional excellence. These needs were addressed in Self and Interpersonal Communications and Community Dynamics. Interpersonal communication skills were intensely practiced in small group sessions. Community Dynamics involved the teacher in developing a profile of the community's educational concerns through analysis of community forces and interviews with local people.

What about electives?

Elective courses were provided by adaptation of mini-courses developed by the Far West Laboratory for Educational Research and Development. Supplemented by protocol materials, teachers were provided with 15 courses designed to provide for their individual needs. Each course was self-paced with printed and video-taped materials provided.

Elective course requirements were completed in the following manner. The teacher read about a specific skill in the particular course manual and then prepared a short lesson to teach to a small group of students. Video taped demonstrations were provided to help in the refinement of the lesson plans. Each lesson was taught, audio taped, and then analyzed. The facilitator and teacher met for a critique session in which they mutually decided if the skill was mastered. If mastered, the teacher proceeded to the next skill, if not the lesson was redesigned, retaught, and critiqued.

Resources available to support the program included ERIC files and computer searches. Many schools had terminals, while ERIC resource files as well as educational periodicals were available in libraries within the area where the program was being delivered. Other materials and books germane to the program were available on a rental basis from the university. All specific course materials were packaged and sold to the teachers on a non-profit basis.

All services were provided to teachers in the field. Qualifying and Comprehensive examinations were scheduled each semester at one of the field sites. Advising is centrally maintained with all instructors transmitting information and requests to the Teacher Corps office at Emporia State University for processing.

West Virginia College of Graduate Studies

Excerpt from the paper "Delivery and Impact Evaluation of Staff Development in a Rural 10th Cycle Teacher Corps Project " by Ronald B. Childress : RAC Conference, San Francisco, April 1979.

The West Virginia College of Graduate Studies, working cooperatively with personnel from the Clay County, West Virginia school system, developed and obtained a 10th Cycle Teacher Corps grant in June, 1975. The primary goal of this project was to deliver and assess the impact of a comprehensive staff development program, including a non-traditional graduate level elementary education program, on the teachers and students in a single rural Appalachian school, Clay Elementary School, Clay, West Virginia, located approximately 50 miles northeast of Charleston.

The West Virginia College of Graduate Studies is a relatively new institution of higher education empowered to confer master's degrees in four areas—Engineering and Science, Business and Management, Behavioral Sciences, and Education. Before 1972, there were two institutions in West Virginia conferring graduate degrees—West Virginia University located in the far northern part of the state and Marshall University on the western border of the state about midway between the northern and southern boundaries. The location of these universities and the mountainous terrain made the pursuit of graduate education extremely difficult for residents of the southern and eastern sections of the state.

Staff Development Model

The staff development model utilized in the Appalachian Teacher Corps project had three primary foci (see Figure 13). First, the offering of graduate level courses on-site to the target group (experienced teachers and Teacher Corps interns in the Clay County target school). The second component of the staff development design, the inservice focus, was directed toward planning, developing and implementing a comprehensive inservice

program for cooperating teachers and Teacher Corps interns. The final component of the project was the staff development model directed toward providing experienced teachers with support services and technical assistance through increased interaction with both college and non-college personnel.

Graduate Program Component

Implementation of the graduate program component of the model included offering a complete graduate program (45 hours) on-site in the Clay Elementary School. Several of these courses were non-traditional in format, structure and delivery mode. For example, two of the courses, one focusing on Appalachian culture and heritage and the other on school-community interaction in a rural setting, were offered as two-year courses (meeting one time per month) designed to continue throughout the duration of the project.

Following a year of needs assessment and self-study by the faculty of the West Virginia College of Graduate Studies, a model elementary education program was developed. This new program, representing a major departure from the traditional approach to graduate education for practicing teachers, was designed as a graduate level supplement to the undergraduate training of elementary school teachers.

An explicit set of assumptions about the nature and purpose of graduate teacher education served as the base for designing the elementary education master's program offered in Clay County. These assumptions, considered as purposes of the total system from which more specific curriculum goals, objectives, and strategies were generated into six general areas:

1. The curriculum should provide the base of knowledge and skills necessary for teachers to function professionally and independently.
2. The curriculum should provide a disciplinary base.
3. The curriculum should provide a sequential set of experiences.
4. The teachers should meet minimum admissions standards.
5. The curriculum should be designed with measurable objectives.
6. The curriculum should provide some choices in terms of areas of concentration (Grodsky and others, pp. 19-22, 1976).

The curriculum was implemented in such a way that teachers could achieve competence in areas congruent with the rationale and purposes of the system. Therefore, curriculum goals and objectives more specifically delineating the desired program outcomes were stated. These goals were properly regarded as an integrated set of related competencies rather than discrete skills or content areas to be mastered.

Evolving from the statement of curriculum goals were the more specific curriculum objectives. The curriculum objectives were divided into two general subcategories, cognitive sub-objectives and application-oriented sub-objectives. The cognitive sub-objectives relate directly to the knowledge gained in the courses which make up a teacher's plan of study. The application-oriented sub-objectives, just as seriously sought, were considered to be the behavioral result of a teacher's having attained the cognitive sub-objectives of the program. Essentially, these sub-objectives represent the outcomes in the teaching practices of teachers in the program.

Sequentially, the curriculum was divided into four components for implementation:

a. Part 1 is the core of the curriculum and consists of indepth study in research, planning and evaluation techniques.
b. Part 2 of the curriculum presents an indepth disciplinary base in the areas of child development and learning.
c. Part 3 offers an area of concentration (specialty) in a particular area. Concentrations (areas of specialization) are offered in language and reading, early childhood education, and instructional planning.
d. Part 4 of the curriculum, the final symposium, offers the teachers and instructors a final opportunity to assess the expertise gained by teachers throughout the total program. A research project in the teacher's particular area of interest is completed and critiqued by peers.

During the two years of the Appalachian Teacher Corps project, and consistent with the missions of Teacher Corps and the West Virginia College of Graduate Studies, the entire elementary education program (a total of 45 credit hours, 39 offered on-site in the school) were offered to teachers in Clay Elementary School. To cope with the constraints of distance (120 mile round-trip from the institution of higher education to the school site), geographic isolation and interfacing schedules, varied course organiza-

tional and delivery formats were utilized. Among them were variations in credit hour designations from 1 to 6 hours, time frameworks varying from two-weeks to two years, delivery formats including intensive two-week and three-week workshops, single semester courses, individualized and modular oriented approaches, and independent study opportunities.

Inservice Component

Activities within the inservice component of the model included planning and conducting preschool and after-school inservice program and assessment of teacher-perceived inservice needs. In addition, inservice planning for the second project year included the implementation of a collaborative governance model.

Service and Technical Assistance Component

The third component of the retraining model was to provide appropriate support services and technical assistance for cooperating teachers. Consistent with project goals, an increasing number of support personnel (both project and non-project) representing several West Virginia College of Graduate Studies program areas provided on-site support to experienced teachers as a function of the staff development effort. Additional support personnel, not formally attached to the College, were also utilized within this framework. Included among these were special consultants, community resource persons (particularly related to the study of Appalachian culture and heritage), representatives from other institutions of higher education, and staff members from the National Teacher Corps supported Leadership Training Institute.

Summary and Conclusions

This section raises three issues concerning the delivery system in staff development. To illustrate potential answers to these concerns, six Research Adaptation Cluster Teacher Corps project delivery systems were described to provide the reader with possible solutions.

While the concept of a delivery system is complex and certainly not

all questions concerning delivery systems have been identified, there are similarities in the lessons learned not only in the six delivery systems reported but in the remaining 15 Research Adaptation Cluster Teacher Corps projects.

These lessons learned may provide insights to planners and developers of staff development programs in the future.

1. When teachers' perception or recognition of their needs differs from the perceptions of the staff development planners, little real change is likely to occur.
2. The danger of fragmentation can be avoided if provisions are made for regular communication among and between all concerned persons.
3. Staff development delivery systems must provide opportunities for teachers to have the responsibility and ownership for the development of their inservice activities.
4. Teachers need to work together to formulate their needs, review information, make recommendations, and implement policy. In collaborative staff development, teachers become both policy makers and inservice educators.
5. University/college faculty involved in field-based staff development need to spend more time in the field.
6. Delivery systems should include a problem-solving process with clearly defined procedures that are program specific.
7. Delivery systems must be developed that are flexible. There must be provisions to accommodate changes in goals, teacher needs, and schedules.
8. The staff development site should be located within the school district, not on the university or college campus.
9. Delivery systems should include provisions for continuous staff development. There must be follow-up between the instructor(s) and an individual teacher in the teacher's classroom.
10. Delivery systems should provide a variety of options for teachers with appropriate materials and instructional staff.

Perhaps Joyce (1976) best summarizes this complex organism by stating:

The best delivery systems will be those in which a collegial atmosphere is developed within the school so that teachers continuously study their

teaching in ways which meet their needs, continuously reflect on the products of their study, and continuously are provided follow-up to the study in their own classrooms.

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SECTION V

SUMMARY & CONCLUSIONS

12 The Many Faces of Research In Staff Development

Rita C. Richey

Overview of Projects

This monograph examined research adaptation and staff development as exemplified in Teacher Corps projects in the Research Adaptation Cluster (RAC). From 1975 to 1979 there have been 21 such projects each two years in duration. These projects represented a nation-wide sample of staff development efforts from a variety of geographical, sociological and educational situations. Staff development efforts in RAC projects involved at least:

a. Twenty one different geographical locations.
b. Thirty six different schools (including 24 elementary, four middle or junior high schools, six high schools and two other types of educational facilities).
c. One thousand participating teachers.
d. Four hundred different training activities.

See Figures 14, 15, and 16 for brief description of the 10th, 11th and 12th Cycle Research Adaptation projects.

While these projects represented a wide range of diversity, they all had certain characteristics which were common to any Teacher Corps training effort. First, the staff development was focused upon one school and its entire staff for both years of a project. Next, all programs were field-based; they were conducted primarily at the local school site. Third,

the projects were based upon a collaborative decision-making process which included an institution of higher education, a local education agency and the community served by the school. Finally, all staff development programs were built upon a needs assessment process.

Even though there were common features of all the RAC Teacher Corps projects, diversity was still perhaps the major characteristic. Sites in the cluster projects included areas such as:

a. An Indian reservation (The University of Wisconsin/ Menominee Indian Reservation)
b. Rural Appalachia (West Virginia College of Graduate Studies/Clay County Schools; Murray State University/Hopkinsville Middle School)
c. Large urban sites (Wayne State University/Detroit Public Schools; CUNY/Queens College/New York City Schools)

Content foci within the research adaptation thrust also varied greatly. Representative of this range were emphases such as:

a. Reading (Lansing School District/Michigan State University; Youngstown State University/Youngstown Public Schools; Trenton State College/Trenton Public Schools)
b. Multicultural Education (University of South Florida/Hillsborough County Public School System; Miles College)
c. Vocational Education (Cullman County Vocational School; Wayne State University/Detroit Public Schools)
d. Mathematics (Stanford University; Florida State University/Florida A & M University; Glassboro State College/Camden)

Many projects had multiple content thrusts, such as dealing with all basic skills. Often a project selected a *process* thrust such as:

a. Diagnostic/Prescriptive Teaching (University of Oregon; Indiana—Purdue University/Indianapolis Public Schools; Emporia State University; Syracuse University)
b. Models of Teaching (San Jose State University/Alum Rock Union Elementary School District)
c. Teaching the Multi-Talented (Murray State University/Hopkinsville Middle School)
d. Needs Assessment and Change Model (Florida State University/Florida A & M University/Leon County)

Again, Figures 14, 15 and 16 give a brief summary of all 21 RAC projects.

Research adaptation within the staff development was the common thread. The preceding chapters have described various approaches to research adaptation. In examining these papers, as well as the summaries of the other projects, some major principles of research adaptation can be identified. In Section I, "Research Adaptation and Staff Development," the adaptation process itself was discussed. Here, three further topics related to the use of research will be examined:

1. The nature of a research base.
2. The role of research in staff development.
3. Research and staff development delivery.

Nature of a Research Base

Research is a global term. A summary of the RAC Teacher Corps projects produced a practical definition of appropriate research bases which were useful in adaptation efforts. The research bases for the RAC projects fell into four categories:

1. Instructional materials.
2. Instructional processes.
3. Principles from a given research study.
4. Principles from a collection of studies on a given theme.

Materials Base

The first type of research base was that of a set of *instructional materials.* Some projects identified materials which had been developed in a systematic fashion, tested and validated. The materials themselves were a *product* of a research process. The project then had to become involved in an implementation of those materials. They either were teacher training materials, or student materials which required staff development experiences to prepare teachers in their use.

There were several examples of implementing existing research products in RAC projects. Youngstown State University used the Random House Reading Program as the focal point of their Center for Extended Learning. These high school level reading materials were used with all students. The University of Oregon used a variety of research-based teacher training materials. These covered areas such as diagnostic/prescriptive teaching, competency-based education and community

Figure 14
Brief Description of 10th Cycle Research Adaptation Projects

Project	Research Adaptation Mission
Florida State University/ Florida A & M University/Leon County	- Adapting the Florida Assessment and Diffusion Systems (FADS) Model to the public school and institution of higher education; school problem solving orientation to: a. improve student self-concept b. change student behavior patterns c. change undesirable student attitudes, and d. increase achievement in reading and mathematics.
Glassboro State College/ Camden Public Schools	- Adapting Precision Teaching in classrooms. - Inservice instruction: a. alternative approaches to classroom discipline b. behavior modification strategies c. parent/teacher effectiveness training d. individualized instruction training e. techniques in diagnostic prescription and evaluation f. teaching strategies for developing thinking
Michigan State University/ Lansing School District	- Adapting research findings via curricular development teams: a. reading b. math c. multicultural education d. social-emotional education e. foundations of teacher education f. exceptional child component - Community-based education.
Murray State University/ Hopkinsville Middle School	- Identifying and maximizing student strengths (Blooms' research in specific talent areas: a. academics b. creativity c. forecasting e. communications f. planning f. decision-making e. leadership
University of Oregon/Eugene School District	- Research-based teacher training materials for: a. diagnostic/prescriptive teaching b. competency-based curriculum development c. program goal assessment e. community resource integration - Intern teaching.
San Jose State University/ Rogers School	- Models of teaching. - Models of teaching. - Pupil learning styles - Teacher self-analysis. - Teacher decision-making.
Stanford University/ Herbert Hoover Jr. High	- Differentiated staffing: a. math work/study team b. language arts work/study team c. physical education work/study team d. social studies work/study team e. community involvement work/study team f. bilingual education work/study team g. multicultural work/study team h. open space work/study team
West Virginia College of Graduate Studies/Clay County	- Develop early childhood education program. - Field-test an innovative graduate level elementary education program. - Implement an individually guided education program within a rural teacher training complex.

Grade Level	Instrumentation
Elementary School	- Harper Reading Management System - Tabulating individual skill development - California Test of Basic Skills - Self-Observation Scales (SOS) - Piagetian Development Theory (scale)
Elementary School	- Daily records of Precision Teaching - Standardized achievement tests (pre- and posttest scores given to experimental and control groups)
Elementary School	- Evaluation items for teachers' self-perception of curriculum planning skills; their actual knowledge of curriculum content and planning; and the extent to which these skills are used in teaching and planning: a. self-report questionnaire b. classroom observation instrument - Reliable measures of pupil behavior, detecting relevant change or growth.
Middle School	- Student Activities Questionnaire (SAQ) - Educational Testing Service version of Questa I and II - CTBS - Firo Val-Ed. - Planning-Implementation-Evaluation (PIE) cycle
Elementary and Secondary School	- Rating of materials by: a. dimensions of adaptability b. relevance and quality c. selected materials for pilot testing - Video Tape scripts for comparison/causation viewing - Program assessment: a. two-by-three pre-test, training, posttest analysis of training methods b. scoring problem solving simulation, pencil/paper performance testing, attitude and opinion questionnaire.
Elementary School	- Base line measures compared with process and outcome measures using a. Levels of Use of Interviews (Fuller, Hall) b. T.I.S. observation system (Joyce) c. Spaulding's C.A.S.E.S. observation system.
Middle School	- Language Dominance Test - Multicultural Climate Scales - Survey of Hoover School and participating Stanford faculty - CTBS
Elementary School	- Minnesota Teacher Attitude Inventory (MTAI) - Purdue Teacher Opinionnaire - Teacher self-esteem measure - Student attitude and activity survey - Stanford Achievement Tests - Flanders' Interaction Analysis

Figure 15
Brief Description of 11th Cycle Research Adaptation Projects

Project	Research Adaptation Mission
University of Alabama/Alabama Agricultural and Mechanical University/ Cullman County Vocational Center	- Curriculum development for vocational schools. - Research-based system for instructional improvement. - Sub-system relating pupils to curriculum. - Diagnostic/prescriptive and evaluation of vocational pupils. - Pupil self-perception.
Indiana-Purdue University/ Indianapolis Public Schools	- Mastery Teaching - Far West Lab Instructional Purpose Research, a personalized, field-centered curriculum. - Demonstration model for a complete diagnostic/prescriptive system. - Evaluation of teacher effectiveness. - Community "discovery process."
Miles College/ Jefferson County School System	- HPTP Model for the Handicapped. - Individualization and personalization of skills (inservice). - Development of teaching competence. - Multicultural education.
Oakland University/ Farmington Cycle 11 Youth Advocacy Program	- Improving reintegration of troubled youth. - Improving accommodative power of community toward troubled youth. - Behavior Skills Lab (BSL). - Professional development for teachers, administrators, community agencies, and law enforcement officials. - Teacher resource center.
Queens-CUNY/ P.S.133 Manhattan	- Child-centered learning through teaching: a. on-site instruction b. diagnostic/prescriptive teaching c. learning through teaching (reading, language arts) - Curriculum development. - Adult learning through teaching.
University of South Florida/ Hillsborough County Public Schools	- Application of research findings on diagnostic/prescriptive instruction. - Developing/demonstrating an approach to learning (math and reading for low income are children). - Multicultural education through experiences. - Task analysis model.
Youngstown State University/ Youngstown Public Schools	- Improve teachers effectiveness/proficiency. - (Re)train interns. - Improve school-community educational needs: a. urban education research b. research on P/CBTE c. research on models of teaching d. research on learning disabilities and behavior disorders

Figure 16
Brief Description of 12th Cycle Research Adaptation Projects

Project	Research Adptation Mission
Emporia State University/ Emporia Unified School District No. 253	- Implementing and institutionalizing a field-based master's degree inservice education model. - Implementing problem solving techniques related to school organization. - Development of a collaborative decision-making council (parents,teachers and administrators from the LEA, IHE and SEA). - Diagnostic/prescriptive approach to teaching language arts and mathematics.
Florida State University/ Pineview Elementary	- Adapting the Florida Assessment and Diffusion Systems (FADS) Model to the public school and institution of higher education. - Application and awareness of entry principles to project operations - Implementing temporary systems concepts to planning and building project components. - Institutionalizing a field-based master's degree program.

Grade Level	Instrumentation
Cullman County Area Vocational Center	- Teacher Appraisal Instrument - Alabama Occupational Information System (AOIS) - Teacher Education Modules (Ohio State University) - MBO system (State Department of Vocational and Technical Education, OK) - Flesch, SRA, and FRY reading scales
Elementary School	- Metropolitan Achievement Test - CAT - Likert-like scales for teacher response - mini-courses
Elementary School	- Video tape analysis of teaching methods - Project methods - Kohlberg's theory of moral development - Flanders' interaction analysis criteria
Junior High School	- BSL as developed by Susan and Barry Dollar - LOFT - Michigan Assessment Test (SIAs) - student initiated activities
Elementary School	- "Words in Color" (Gattengno) - Queens College paraprofessional teacher education program
Elementary School	- Illinois Test of Psycholinguistic Ability - Frostig's Development Test of Visual Perception - Wepman's Auditory Discrimination Test - Wechsler Intelligence Scale for Children - Task/Process Integration Model (Uprichard, Baker, Dinkel, Archer, '75)
Inner-City High School	- BASIC'S - Mastery Teaching - CBTE modules - Systems for instructional product development - Stufflebean CIPP Evaluation Model

Grade Level	Instrumentation
Elementary School	- California Achievement Test - Berbe and Dolch grades word list - Systematic Learning Process: interim and final evaluation of Emporia State University Teacher Corps project - Effective School Processes (Kettering Foundation) - El Paso Language Dominance
Elementary School	- Tabulating individual skill development - California Test of Basic Skills - Self-Observation Scales (SOS) - Piagetian Development Theory (scale) - Observation and Supervision Conferences

University of New Hampshire/ Portsmouth Jr. High	- Use of systematic sustained linear adaptation. - Use of a school problem orientation or ad hoc problem solving research adaptation process. - Ongoing planning and evaluation. a. needs assessment b. resource identification c. input/output evaluation - Inservice education: a. individualization b. multicultural education c. exceptional child and mainstreaming d. reading, writing and language arts e. psychological education and human relations
Michigan State University/ Lansing School District	- Development and implementation of an integrated language arts, multicultural, and creative dramatics curriculum for children. - Development and implementation of an inservice model emphasizing collegial relationships between teachers and teacher educators for adapting validated research. - Creation and maintenance of learning environments encouraging multiculturism, creative and collaborative problem solving.
University of Oregon/Eugene Public Schools	- Development of inservice education models for IHE and LEA personnel: a. preparing secondary teachers to write competencies (CBE) needed for high school graduation b. preparing teachers for diagnostic/prescriptive c. delivery of statewide inservice program at the master's degree level
San Jose State University/Alum Rock Elementary	- Implementation of a Coping Analysis Schedule for Educational Setting (CASES) containing 13 categories. - Inservice education approach to: a. Models of Teaching b. teacher self-analysis c. alternative teaching styles for pupils d. curriculum development
Syracuse University/ Edwin E. Weeks Elementary	- Adaptation of research findings which emanated from 10th Cycle experiences: a. research on teacher behavior and effectiveness b. organizational development c. diagnostic and prescriptive teaching for grades 1 to 6 reading and mathematics
Trenton University/ Wilson Elementary	- Developing and testing models for onsite, inservice staff development initiated in Cycle 10: a. developing and testing instructional strategies and materials for reading comprehension b. content determination c. diagnosing and correcting reading comprehension d. dissemination to other Trenton elementary schools
Wayne State University/Detroit Public Schools	- Examining effects of teacher behavior on pupil achievement. - Designing and implementing innovative vocational education programs. - Improving basic skills - Competency-based professional development.
West Virginia College of Graduate Studies/War Elementary	- Developing and implementing a community education program and school community advisory council. - Establishing and implementing a data-based research model to provide information to a rural teacher training complex. - Developing and implementing a field-based graduate level, field based elementary program, special education, education administration, elementary and secondary education, and reading education.
University of Wisconsin/ Menominee School District	- To address and increase specific educational opportunities for Menominee children: a. adapting research on the Florida Parent Education Program and use of research for infusion of other Indian cultures into school system settings b. research from the language arts is adapted to further delineate specific educational opportunities of Menominee children - Equipping tribal leaders and other community people with skills and experiences to solve problems in areas - Implementing a cost/benefit model.

Jr. High School	- Case Study Approaches - Concerns Based Adoption Model (CBAM) - Data analysis on: a. curricular innovations b. student profiles c. teacher profiles d. organizational climate - Teacher designed assessment and evaluation instruments - Teacher journals - Classroom Environment Scales
Elementary School	- Formative and summative evaluation on project implementation - Classroom observation instrument - Student achievement scores
Senior High School	- Monitoring systems: a. PERT b. PPBS c. MBO
Elementary School	- CASES - Indicators for Models of Teaching - Indicators for Lawrences Hall of Science materials - TIS
Inner-city elementary school	- Demographic survey of target site schools and community - Questionnaires - Attitude instruments - Formal/informal interviews
Elementary School	- Observations and interviews - California Test of Basic Skills
Sr. High School	- APPLE observation process - Teacher-made objective referenced tests - Standardized reading tests
Rural elementary School and Jr. High School	- Descriptive reports of successes and failures of project efforts. - Descrepancy evaluation, observation, interviews rating scales. - Process evaluation, CIPP model.
2 public elementary schools 2 parochial elementary schools 1 public high school 1 community high school 1 child development center	- Scott Foresman Reading Program - SRA Achievement Tests - Iowa Tests - Metropolitan Batteries - Ex-post design to study 10th Cycle Wisconsin Native American Teacher Corps project

resource integration. A third example, the Oakland University project, selected the Behavioral Skills Laboratory (Learning Opportunities for Teachers) as part of their research base.

In all of these examples a project looked at specific products of research for use in the school. The emphasis was not upon the research process, but upon practical applications which were devised by others. This may be an example of research adoption rather than research adaptation. In any case a set of instructional materials developed and tested through research serves as the base for staff development.

Process Base

A similar type of research base was a systematically developed and tested *instructional process.* There were instances in which a series of procedures served as the basis of further research. These tested processes were then adopted by projects to be implemented in their local school site.

Exemplifying the type of research base described above was the Precision Teaching technique used in the Glassboro State College Teacher Corps project, and the Indiana—Purdue University project which used Mastery Teaching techniques. In these examples the process of organizing, presenting and evaluating instruction evolved out of many research studies and theoretical positions.

The University of South Florida project selected the task-integration model of diagnostic/prescriptive teaching as its research base. This project applied many of the research findings on diagnostic/prescriptive teaching. Chapter 5 describes how the research adaptation (or application of the research base) and model implementation were combined.

Another process-oriented research base example was the Florida State/Florida A & M University project. The research bases were not instructional processes, but rather three change processes which effected creating change in the schools—FADS, Temporary Systems and Entry. Therefore, the research base guided the project management and staff development techniques (see Chapter 8).

Single Study Base

The third major type of research base was the single study. Here a given study provided the stimulus for the research adaptation process. The Safe School Study provided a basis for Oakland University's Youth Advocacy project (see Chapter 10), while the CASES and STARS (see

Chapter 4) data collection processes played a primary role in the San Jose State project. The design and data collection processes of the Beginning Teacher Evaluation Study provided a base for the Wayne State University/Detroit Public Schools project.

In each of these projects specific research served as a basis for adaptation or replication. In each case there was a direct link between research and practice via design, data collection or a set of findings. The outcomes from these staff development efforts added to the literature related to issues such as re-integration of troubled youth (Oakland), learning styles and teacher behavior (San Jose State) and teaching behaviors which effect pupil performance (Wayne State).

Multiple Study Base

Finally, there were projects which used a collection of studies to provide the basis for solving school problems. This was perhaps the purest example of research adaptation. The problem-solving process described in Section I, in which research adaptation became an integral part of staff development, exemplifies the manner in which projects drew upon the literature. Lansing School District/Michigan State University (Chapter 3) and the University of New Hampshire (Chapters 2 and 6) were two examples which used this process. In these situations, the research base changed as a staff worked on their particular problem. Typically, the use of multiple studies on a related topic was not a process in which the actual research base was conceived before the needs assessment stage. Rather the project staff and/or teachers turned to research after particular needs and interests had been identified.

One can note in Figures 14, 15 and 16 that some projects had a multiple research base. This should not be confused, however, with the multiple study base. Projects may have had more than one facet to their research component. In the multiple study base, outcomes of a number of studies were linked together to provide direction for classroom or school change.

Thus, four types of research bases—materials, process, single study and multiple study—provided the direction for a research-oriented staff development project. Furthermore, the type of research base selected influenced the use of that research, which may be *adapted* to the local situation, *adopted* or *replicated.**

*See Section I, for a more complete discussion of these distinctions.

Role of Research in Staff Development

Different types of research can be used in staff development; the research can be manipulated in a number of ways; and the Research can play a variety of roles. These roles can be described as a:

a. Planning tool
b. Data collection tool
c. Problem solving tool

Figure 17 below illustrates the typical relationship between the type of research base and the role of research in staff development programs.

FIGURE 17
The Relationship Between Types of Research Bases and the Role of Research in Staff Development

	ROLE OF RESEARCH		
	Planning Tool	Data Collection Tool	Problem Solving Tool
Materials	X		
Process	X	X	
Single Study	X	X	
Multiple Studies	X		X

Planning Tool

Research often plays a major role in staff development within the program planning stage. In several of the RAC projects the research base was identified prior to program operation—frequently in the proposal writing stage.

In the Trenton State College/Trenton Public Schools project the Barrett Taxonomy of Reading Comprehension was selected, by the project staff, as the research base. Teachers were initially unaware of this base; nevertheless, it did provide a theoretical framework for the project (see Chapter 7). Similarly, the NIE Safe School Study findings gave a rationale to the development of the student initiated activities in the Oakland University/Farmington Public Schools Youth Advocacy project (see

Chapter 10). Precision Teaching was selected as the major thrust before the Glassboro State College project began (see Chapter 9).

These three examples show how three different types of research bases (materials, process and single study) were used primarily as a tool to plan and organize each project. The teachers participating in the staff development activities may or may not have been aware of the research base or even of the research adaptation process. However, the project was based upon and represented an application of research. The research served as a data base for decisions regarding the direction of the staff development.

Data Collection Tool

The second major role of research was to provide a validated method of collecting data during staff development. Projects with a research orientation tended to emphasize data-based documentation and evaluation. Furthermore, those efforts which included elements of research replication had the added complexity of collecting additional data to add to the profession's knowledge base. Therefore, there were projects which used their research base as a source of data collection processes and procedures.

The San Jose State University/Alum Rock Union Elementary School District project used CASES and STARS (see Chapter 4). Precision Teaching Charting techniques used in the Glassboro project provided data not only for teaching decisions, but also for determining impact and effectiveness (see Chapter 9). Wayne State University/Detroit Public Schools used the APPLE classroom observation system from the California Beginning Teacher Evaluation Study. This process not only produced replication at the secondary level but also provided teacher effectiveness measures. The research bases in these examples were single studies and processes.

Problem-Solving Tool

Finally, research was used as a problem-solving tool. An example of this was presented earlier in relation to the multiple study bases in the Lansing School District/Michigan State University project (see Chapter 3) and the University of New Hampshire/Portsmouth project (see Chapter 2).

In the broad sense, all types of research involve problem solving. However, the term is used here to identify those projects which interacted with the literature on a more frequent basis in an effort to find solutions to local needs. This research base tended to be more amenable to adaptation,

as opposed to adoption or replication. Often the adaptation was achieved through an integration of findings from several studies.

Summary of the Use of Research in RAC Projects

In the previous sections the types of research bases and the role of such research was discussed from the experiences of 21 RAC Teacher Corps projects. However, categorization efforts tend to simplify more complex situations in an effort to identify trends. In fact, many of these projects had several research thrusts and the bases play more than one role. Figure 18 shows the number of instances in which a particular type of research base was used and in what capacity. The third dimension shown in Figure 18 is the manner in which the research was implemented in the staff development programs—adapted, adopted, or replicated.

Figure 18
Frequencies* of Use of Selected Research Bases, Roles and Implementation Approach in RAC Staff Development Programs

	ROLES OF RESEARCH									
	Planning Tool			Data Collection Tool			Problem Solving Tool			
TYPES OF BASES	Adaptation	Adoption	Replication	Adaptation	Adoption	Replication	Adaptation	Adoption	Replication	TOTAL
Materials	1	6	—	—	1	—	—	—	—	8
Process	2	6	—	—	2	—	1	—	—	11
Single Study	1	5	—	—	8	2	—	—	—	16
Multiple Studies	3	2	—	—	—	—	8	—	—	13
TOTAL	7	19	0	0	11	2	9	0	0	48

*Frequency decisions were based upon data in Figures 14, 15, 16 as well as papers and conferences presented and submitted to the RAC.

From this figure it is apparent that research was used most frequently in the planning phase, and that adoption of research findings was more frequent than adaptation (16 projects adapted while 30 were adopted). Replication was not a major emphasis within a staff development framework.

Research and Staff Development Delivery

The fact that the research bases were used more in the planning phase of the RAC staff development programs may be reflective of the daily pressures of delivery issues when managing such an effort. Section IV has addressed the complexities related to general delivery system issues faced by many staff development programs. What delivery principles are highlighted in programs with a research adaptation thrust?

First is the need for teachers to take an active role in the planning and implementation of the staff development program. This was cited not only in reports of many of the RAC projects but also in the literature (Joyce, et al., 1976; Lawrence, 1977; Miller, 1977). The American Federation of Teachers called for increased involvement of teachers in LEA research and evaluation. The AFT indicated that "as long as teachers are not key in defining research needs, and as long as the atmosphere in which teachers operate makes individual experimentation a threatening enterprise, results of research are unlikely to be of much use or consequence" (*Report on Educational Research* cited in Herrick, 1979).

It appears that most of the projects which used their research base as a problem-solving tool capitalize upon the teachers as active participants in the research adaptation process. In other instances (Trenton State College) teachers were initially unaware of the research base, although active participation in the staff development planning, nonetheless, took place. Ultimately, the relationship between research and practice was clarified. This clarification process in itself became a part of the staff development.

The notion of active teacher involvement led to the feeling of program *ownership* by the participants. Many projects reported that without this feeling programs were likely to be unsuccessful (see Chapter 3—Lessons Learned in the Lansing Public Schools project/Michigan State University). This became especially critical when dealing with research issues which were often viewed as part of the "ivory tower" concerns of professors rather than real life needs of the practitioner.

These Teacher Corps projects, as previously noted, were focused in one school with programs geared to the particular needs of those students, staff and community. Lawrence (1977) and Mann (1978) stressed the importance of this approach as opposed to using pre-packaged programs. This issue becomes especially important when looking at the distinctions between research adaptation and research adoption.

Research adoption does not necessarily imply that local school needs

were not being considered. What was critical was that the research base selected was directly applicable to a given school. Distinctions must be made between adoption in terms of planning, data collection and problem solving. Adoption appears to be inappropriate for a problem solving mode, efficient and expedient for data collection and useful, if carefully selected, in a planning mode. In the planning mode adoption is similar to establishing a direction or framework.

It should also be noted that in the 21 projects with a research thrust, this was rarely the *total* staff development emphasis. Research probably did not systematically mold *all* staff development activities. When a project staff and a group of teachers worked together for two years, if individual needs were truly being met, research interests may not always have been the major focus.

A third delivery principle which emerged from these projects and the literature was the need to establish an overall staff development program rather than "one-shot" efforts (Lawrence, 1977; Miller, 1977). Related to this was the need for a planned follow-up to guide implementation (Joyce, et al., 1976; Lawrence, 1977; Mann, 1978).

Having research oriented staff development does not insure a programmatic thrust but, using the 21 RAC projects as examples, it seemed to encourage it. A research base did provide an overall plan. The research outcomes selected in these projects required a long-range plan to implement the findings in a school setting.

Specific projects added unique follow-up plans to promote implementation. The school-based teacher education built into the Florida State/Florida A & M University project is a good example (see Chapter 8). And the comprehensive diagnostic/prescriptive teaching model employed by the University of South Florida includes an implementation/evaluation/feedback component (see Chapter 5).

In addition, there was a general emphasis on data collection and determining effectiveness among these projects. This encouraged an overall plan of staff development with attention to classroom implementation.

Summary

Adapting research then not only facilitates staff development, but in many cases serves as a process in itself for upgrading teacher skills and creating changes in the classroom. It is a complex process with a variety of

alternative routes. The 21 Teacher Corps projects in the Research Adaptation Cluster provided case histories which demonstrate techniques of using research outcomes as a basis for systematic improvement of schools and teaching. They were examples which have operated within a variety of contexts and constraints. While this monograph does not represent a "how to guide" it should provide a stimulus to teachers and teacher educators who want to design their own staff development approaches to adapting educational research.

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